

















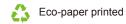


Honorary Staff Moving CSG Honorary Group Moving CSG



Add: NO.6 Huasui Road, Zhujiang Xincheng, Guangzhou, P.R. China, 510623

P.C: 510623 Tel: 020-38121958 Fax: 020-38865670 Web: www.csg.cn





2011

Corporate Social Responsibility Report



Framework of Responsibility

Core value represents a company's sustaining and fundamental belief and embodies a company's basic philosophy. CSG has identified its core value as "A Myriad of Twinkling Lights, Great Rapport of CSG". The core value reflects CSG's quality service to its clients, care to its employees, dedication to environment protection and corporate responsibilities to communities. In essence, the core value interprets CSG's accountability to every stakeholder, including: governments, clients, employees, partners, environment, communities and the public.

CSG solemnly pledges: we shall take consideration of community and environment in our decision making process, we shall shoulder responsibilities of social and environment impact, we shall be transparent and ethical, and observe laws, regulations and international code of practice, we shall incorporate social responsibility into our operation. We shall establish a harmonious and interactive relationship with our stakeholders. We believe that our commitment shall not fail the concern of and meet the expectation from the stakeholders. Our commitment shall create value, win trust and respect and facilitate our own growth and sustainable development of the society.

A Myriad of Twinkling Lights, Great Rapport of CSG

CSG understands its role is to deliver utility services, and CSG's practices and policies are based on the nature of being of a utility service provider.

From corporate strategy level, CSG takes the initiative to shoulder corporate social responsibilities (CSR). CSR is the driving force of CSG's effort to surmount tough challenges and embodies CSG's corporate value.

The Core Value represents CSG's understanding of corporate responsibilities and highlights CSG's accountable image .

Power Supply Responsibility

To deliver a safe power supply: To guarantee a safe, stable, reliable and quality power supply for the sustainable development of the economic society is CSG's core responsibility. To maintain public security and public interests in confronting serious and unexpected natural disaster is CSG's political responsibility.

.....

To promote social harmony: we are committed to universal power service. CSG's special responsibility is to facilitate coordinated development between cities and the rural areas. To cooperate with stakeholders for a win-win situation is the shared responsibility of CSG and all sectors of the community.

Social Harmony Responsibility

Economic Performance Responsibility

To gain a sound economic performance: CSG's fundamental responsibilities are to strictly carry out the national policy on tariff, pay special attention to management, ensure security, appreciation, cost reduction and efficiency enhancement of state-owned assets, and prioritize social benefit .

To save energy and protect the environment: CSG's responsibilities are to build a green power grid, to facilitate energy saving and emission reduction and to facilitate a coordinated and sustainable development of enterprise, community and environment.

Environment Protection Responsibility

Contents

Board Chairman's Speech

01



About Us
Mid and Long Term Development Strategy

Responsibility

03



Electric Power Supply

13



Economic Performance

33



Energy Saving and Environmental Protection

41



Social Harmony

57



Responsibility Management
Outlook of 2012
The 3rd Party Endorsement

69



GRI Index
United National Global Compact Performance
About This Report
key performance index table
Innovative reporting model

77



Board Chairman's Speech

I sincerely hope that the report will better the whole community's understanding of CSG and have their support of the company's reform and development.



Year 2011 marked the first year in the 12th Five-Year- Plan on National Economy and Social Development (hereinafter to be referred as 12th Five-Year- Plan), and the first year of CSG Mid-to-Long Term Development Strategy. The past year witnessed complex and volatile economic situation, frequent natural disaster outbreaks and severe power shortages. Under the challenges and hardship, CSG has adhered to overarching principle and policies promulgated by CPC(Communist Party of China) and the State Council, and has abided by sustainable development and facilitation of economic development transition by giving priority to corporate management capacity enhancement, striving for the best compaign, systematic and standardized management, CSG has made positive achievement for social and economic development of the five provinces and regions.

CSG has surmounted a number of hardships and has tried every effort to deliver power supply. Confronted by the most challenging power supply and demand situations in the past decade, CSG has taken the initiative to report to ministries, commissions at the central government level, and communicate with CPCs and governments at provincial/regional level under the guiding principle of "Guarantee a safe power supply, guarantee domestic power supply, guarantee people's livelihood, and guarantee key clients". The company has defeated natural disasters, including ice sleet disaster in Guizhou, earthquake in Yingjiang Yunnan, Nesat and Nalgae severe typhoon attack. CSG has delivered safe power supply to significant events, including Shenzhen Universiade, National Ethnic Games, Boao Forum, to name just a few. CSG's painstaking efforts have been paid back: with relative minor power increase, CSG 's power supply service has supported stable and reasonable fast economic growth in the five provinces/region, and achieved"win-win" situations to every stakeholder (government, power plants, and clients)

CSG has always been committed to serving the community and leveraged the striving for the best compaign to constantly improve its service. The company adheres to the core value and attaches high priority to an orderly and effective power supply with an aim to constantly enhance customer service quality. In total, 3,168 "Serve the community" teams have been established to address urgent concerns of the community. For years, CSG's power supply service quality has been ranking top in public survey in Guangdong and Yunnan province, and has always been the top ranking company in public survey in other provinces/regions.

Low carbon development for a green development platform. CSG has reinforced "Green Action" and has given full play to its guiding and coordination role in energy saving and emission reduction campaign in upstream and downstream and has always committed to development of a low carbon community. CSG has rolled out energy saving power generation dispatching grid-wide, energy power consumption of coal-fired power units have achieved 4 grams/KWh, equivalent to saving of 2.27 million tons of standard coal. The company continues to improve lean management for line loss; in 2011, the overall line loss across the grid was 5.35%, recording 0.93% line loss improvement than the year of 2010. CSG has been actively supporting the development of the electric car sector, and established its 1st electric car battery change experience center in Guangzhou. CSG has promoted Energy Management Contract (EMC), and in 2011, under CSG's assistance, its clients achieved 1.975TWh energy saving. The company was awarded the title of "Excellent Central Enterprise in Energy saving and Emission Reduction Campaign in the 11th Five-Year-Plan period".

CSG has facilitated power grid optimizied development in a systematic way. CSG has completed amendments to CSG 12th Five-Year-Plan, and has promulgated special plan on secondary system, fixed assets investment, energy saving and emission reduction, science and technology innovation, and safety production. In 2011, CSG invested RMB69.7 billion on grid construction, and put 11 key projects into operation. Key projects including Xiluodu and Nuozhadu DC Power Transmission to Guangdong Project and Pumped Storage Station in Shenzhen has been approved and has started official construction, Pumped Storage Station in Huizhou started full-scale operation, 500Kv Guishan Substation in Guangdong was awarded "Luban Award" (the most prestigious award in engineering construction). CSG has retrofitted and upgraded the rural grid, investing RMB 21.3 billion to develop county level power grid, providing electricity for the first time to 11 administrative villages with 43,800 households.

CSG upholds human-oriented management and strives to build the company as the best employer. CSG has always dedicated to sound working environment and has made every effort to ensure employees' occupational health and safety. CSG has reinforced talent pool construction and has initiated "Six Projects". In talent selection, the company has advocated fair, transparent and open principle, and has attached priority to fostering young talents and competitive selection process and job rotation.CSG has phased in position management instead of identity management to offer an open and fair career path for employees. The company advocates commitment spirit and encourages sense of happiness from work. CSG has conducted " Happy CSG" campaign to practice psychological mentoring and spiritual motivation, and has established living subsidy mechanism for retired employees in need to ensure their living quality.

In 2011, CSG promoted its corporate social responsibility work. Events like "Social Responsibility Day" bettered communication and exchanges with stakeholders and were well received by the community. CSG's social responsibility practice has attracted attention and won recognition and support from the community and the SASAC.

Year 2012 marks a year of significance in China's development process. 2012 shall witness the 18th Plenary Session of CPC. New situations have created new opportunities and requirements for the company's opportunity and challenges. We will adhere to "stable development" principle, and take extensive specific measures to implement Harmonious Development Strategy for Central Enterprise in the 12 Five-year-Period, and CSG's company strategy and try every effort to enhance corporate sustainable development, service economic and social development of the five provinces /region and deliver our solemn pledge (that is: ensure safety, ensure power supply and ensure stability)

CSG shall abide by our solemn promise of social responsibility and accountable operation. We will constantly improve our work and hope to live up to the requirement and expectation of stakeholders in a sincere, objective and transparent way. We hope this report will better the communication and trust between the CSG and all stakeholders. Let's join effort to create a better future.

St Pay

About Us

Management

Zhao Jianguo

Board Chairman



Zhong Jun

Board Director President



Board Director Vice President



Wang Jiuling

Board Director Vice President





Sun Xiaoyi

Head of Discipline and Inspection





Zhang Xiaodong





Vice President



Li Wenzhong

Chief Finance officer

■ Corporate Governance

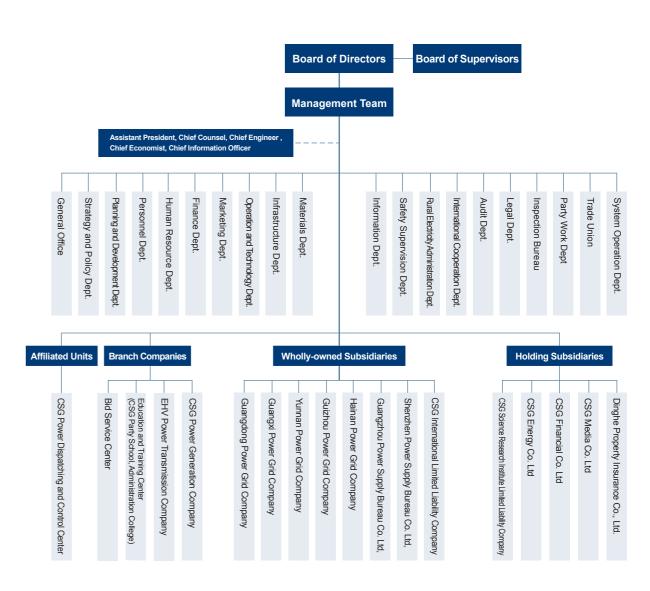
CSG is a state-owned backbone company. In accordance with the Company Law and the requirements of the State-owned Assets Supervision and Administration Commission of the State Council, CSG has established a modern corporate Governance structure consisting of board of directors and operation management.

Board of directors plays a core role in corporate governance. The board of directors exercises administration in accordance with Articles of Association and continuously perfects its operation mechanisms to guarantee the efficient, standard and orderly operation.

Service-oriented, operation-based; conglomeration-operation, integrated management are the CSG's strategic orientation. CSG specifies decision making power and procedures, maintains a sound check and balance. CSG has always been committed to legal compliance of listed company by practicing a stringent regulation, procedures and operation. CSG is dedicated to a highly effective operation and state asset certainty and appreciation.

Structure of Organization

CSG headquarter has 20 departments, 1 institution and 4 branches, namely, Bidding Service Center, Education Training Center, CSG EHV Power Transmission Company, CSG Power Generation Company; 8 wholly-owned subsidiaries, namely, Guangdong Power Grid Company, $Guangxi\ Power\ Grid\ Company,\ Yunnan\ Power\ Grid\ Company,\ Guizhou\ Power\ Grid\ Company,\ Hainan\ Power\ Grid\ Company,\ Guangzhou\ Power\ Grid\ Grid\$ Supply Bureau Co. Ltd, Shenzhen Power Supply Bureau Co. Ltd, and CSG International Company. Besides, CSG is the controlling shareholder of CSG Financial Company, CSG Research Institute, CSG Energy Company, Dinghe Property Insurance Co., Ltd, and CSG Media.



Vice President

He Xiqiang





Introduction of Secondary Utilities

China Southern Power Grid Co., Ltd. (hereinafter referred to as CSG) was established in 2002. CSG invests, constructs and operates power networks in Guangdong, Guangxi, Yunnan, Guizhou and Hainan provinces and regions. The service area is of 1 million square kilometers, with a population of 230million. The Company is headquartered in Guangzhou.

Guangdong Power Grid Company

19 local power supply enterprises and a communication, and design and capital construction. By the end of 2010, the total assets of the company amounted to RMB 268.2 billion with 123,059 employees, serving 32.97 million clients/households.

Guangxi Power Grid Company

ompany. And it is mandated to govern 1 county level electric power supply nterprise. By the end of 2011, the total assets of the company amounted to RMB

KunMing

YunNan

Yunnan Power Grid Company

Yunnan Power Grid Company manages 30 assets of the company amounted to RMB 76.7 billion with 59,769 employees and 43.46

GuangXi

HaiKou

HaiNan

NanNing

GuiYang

Guizhou Power Grid Company

Guizhou Power Grid Company manages 13 units (among them 9 are prefecture/city electric power supply bureaus), 83 wholly owned companies, 1 holding subsidiary company and 1 non-profit- making institution. It is mandated to govern 2 county-level electric power supply enterprises. By the end of 2011, the total assets of the company amounted to RMB 58.1 billion with 54,529 employees and 38 million clients.

Hainan Power Grid Company

Hainan Power Grid Company manages 28 branch companies, 2 electric power supply companies which are listed as independent units, 6 wholly owned subsidaries. By the end of 2011, the total assets of the company amounted to RMB 14.2 billion with 11,536 employees and 8.7 million clients.

CSG Extra High Voltage **Power Transmission Company**

Company is responsible of construction, operation and the important connection lines of China branches. 9 Extra High Voltage Power Transmission Bureaus and 1 Inspection and Experiment Centers. It is mandated to govern 5 professional companies. By the end of 2011, the billion with 4,431 employees

CSG Science

Research Institute

CSG International Co., Ltd.

CSG Power

Generation Company

charge of construction, operation and

management of power plants for CSG. It has 12

divisions and 9 subordinates. The total installed

capacity reached 6720MW (Capacity in

operation). By the end of 2011, the total assets

of the company amounted to RMB 18.9 billion

with 1,569 employees.

CSG International Co., Ltd., was established in in 2010, with its headquarter in Guangzhou. It is in 2007. It is in charge of operation of transnational charge of technical support to planning and (cross-horder) projects of power transmission and construction, safe and stable operation of power transformation; investment and management of of key science and technology projects, new power projects contracts, labour services research and development of new products. By mport/export of new technologies, international Research Institute amounted to RMB 110 million registered capital is RMB 200 million. By the end with 134 employees. of 2011, it had 31 employees.

CSG Financial Company

2004 with registered capital of RMB 3 billion. loan, and entrusted loan, its financial services investment to financial institutions. By the end of 2011, the total assets reached RMB 19.9 billion with 94 employees. The company is headquartered in Guangzhou.

CSG Grid

Guangzhou Power Supply Bureau Co.Ltd

Guangzhou Power Supply Bureau Co.Ltd is a spin-off company from Guangdong Power Grid Company. The company is directly managed by CSG. The company invests, constructs and ver networks in 12 districts/county of Guangzhou City. The service area is of 7,434 square kilometers. By the end of 2011, the total assets of the company amounted to RMB 37.6

Shenzhen Power Supply Bureau Co.Ltd

Shenzhen Power Supply Bureau Co.Ltd is a spin-off company from Guangdong Power Grid Company. The company is directly managed by rates power networks in 8 districts of Shenzhen City (excluding Shekou). The service area is of 1,953 square kilometers. By the end of 2011, the total assets of the company amounted to RMB 37.4 billion with 2.468 million clients.

GuangDong

○ Guangzhou

Dinghe Property Insurance Co., Ltd.

Dinghe Property Insurance Co., Ltd. was insurance, quarantee insurance, short-term health insurance and accident insurance, etc. By the end of 2011, the total assets amounted to RMB 3.43 billion with 877 employees

CSG Media Co Ltd

CSG Media Co.Ltd was established in 2010, operation of media industry, design, and production, publication of advertisement, planning, film and television programmes production. By the end of 2011, the company has 107 employees

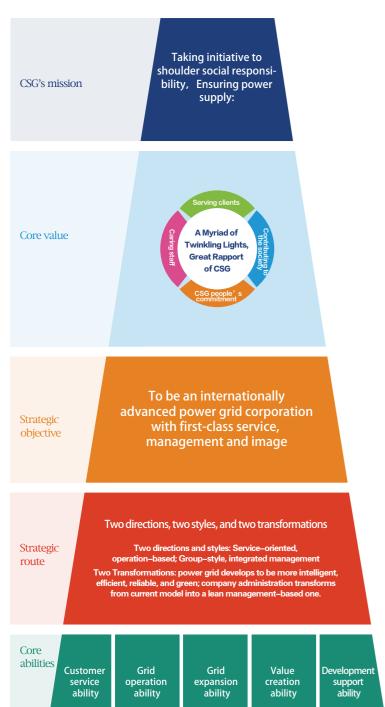
Synthesis Energy Co., Ltd

with its headquarter in Guangzhou. The company is charged with the mission of practicing energy saving and emission reduction, low carbon economy, and facilitating smart grid construction. Its business scope covers: consultancy services, intermediary services, scientific research, technology to energy saving and emission reduction : distributed energy. investment, construction and operation of customer side total assets reached RMB 405 million with 63 employees.



Implementation of Mid-to-Long Term Strategy

In Feb, 2011, CSG identified and published its Mid-to-Long Term Strategy (2011-2020). Year 2011 marks the first year of CSG Mid-to-Long Term Development Strategy, CSG made every effort to meet the SASAC's requirements on central enterprises, that is, to be the leading players in China and establish itself to be first rate global company. CSG gave priority to corporate control and management enhancement, and rolled out integrated and standardized management, facilitated in-depth internal management reform, enhanced sustainable development capacity and therefore, laid a solid foundation for the 12th Five-Year-Plan period.



Publicity and implementation of the Mid and Long Term Strategy

A number of campaigns have staged including management forum, publicity report tour, training programs and workshops to achieve a systematic publicity and implementation of the Mid and Long Term Strategy. The campaigns have bettered employees' understanding of the strategy, and have involved staff in the reform process and ,therefore, have created a sound environment of strategy implementation.

Improve strategy mechanism

Functional departments have made specific interpretation of the Mid and Long Term Strategy, and have conducted functional strategic research on 11 sectors including power grid planning and construction, production and operation, marketing, information, science and innovation, agriculture electricity management, human resources management, finance management, material management, international business, corporate culture,etc. CGS's branches and subsidiaries have identified their roles and development priorities to compile sub-strategy at sub-CSG level.

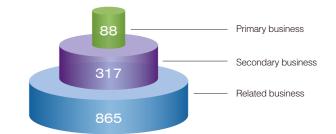
Further management reform

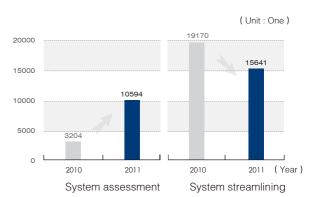
CSG adheres to clients-oriented principle, introduces and practices philosophy of "Full service for clients, lifecycle asset management, and resources integrated management". Management reform has improved corporate structure, remodeled production process, and enhanced vertical connection and horizontal synergy among business units for an effective practice of corporate core value and corporate social responsibility.

Further integrated management

CSG has furthered integrated management, and has implemented standard and unified organizational structure, business process, management system, technical standard, operation standard, indication system and information system in areas including production, power grid planning and building, marketing, human resource management, financial management, goods management and information management. An integrated organization structure with four hierarchies including grid-province-city-county/district has initially taken shape. Business unit-based integrated business flow, management system, technical standard, operation standard frameworks have established. CSG's branches have rolled out their standardized business flow in safety production, power grid planning and construction, marketing, human resources management, material management, information management in their county-level and working teams.

- ☐ In accordance with the Working Plan on Integrated Management, CSG has conducted interim assessment on integrated management. 88 primary businesses, 371 secondary businesses, and 865 related businesses have been highlighted, and another 159 secondary business have been identified for optimization, and 168 horizontal synergy issues have been raised for solution.
- □ CSG launched business synergy work, and has identified 25 core business flow and addressed 60% horizontal synergy issues
- □ CSG enhanced system audit, system review and system assessment to streamline redundant systems. In 2011, 7,390 systems were assessed and 3,529 systems were streamlined.





■ Facilitate pilot programs in Guangzhou and Shenzhen

One of CSG's strategic deployments is to establish Guangzhou Power Supply Co.Ltd and Shenzhen Power Supply Co. Ltd as the pioneers to be the first rate companies. The strategy is made to encourage Guangzhou and Shenzhen to play a constructive role in Guangdong's stable and reasonably rapid economic growth and facilitate high quality social and economic development of the two cities. Guangzhou has been positioned as the nation's pivot city and Shenzhen is dedicated to its "Shenzhen quality" commitment.

CSG has upgraded Guangzhou Power Supply Bureau and Shenzhen Power Supply Bureau under the jurisdiction of Guangdong Power Grid as Guangzhou Power Supply Co.Ltd and Shenzhen Power Supply Co. Ltd. Both companies are identified as subsidiaries and are now under CSG's direct management.



▲ Ceremony for the founding of Guangzhou Power Supply Co.Ltd and Shenzhen Power Supply Co.Ltd

ungzhou Power Supply Co. Ltd. and Shenzhen Power Supply Co. Ltd. adhere to the To-Top principle, namely "Global vision, practical pathfinding, perseverance and consistent improvement." The two companies have used Singapore Power Power Grid (SPPG) and CLP for comprehensive benchmarking with an aim to bring their management practice in line with international leading power companies, facilitate power grid development and make actual improvements on its operation, service and management quality. The benchmarking has encouraged overall remarkable improvements

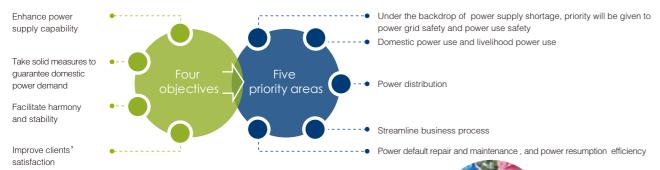
Responsibility -Feature report

Serving the people and striving for the best

In Jul 2011, the central government of China decided to launch the campaign of "serving the people and striving the best" among the departments and industries which provided direct service to the general public. The purpose was to enhance the awareness of those departments and industries to serve the people so that they would improve their performance and provide better service.

Under the leadership of the campaign leading team of the central government and the state-owned enterprises, and by adhering to the "Scientific Outlook on Development", CSG practiced its core value of "A Myriad of Twinkling Lights, Great Rapport of CSG" and carried out performance enhancement activity themed as "Striving for the 'Three Goods' - Service, Management and Corporate Image". The activity prioritized six user groups who were in greater need and set up four targets including enhancing the power supply capability. It stressed five service standards and tried to solve five key problems in power supply. By making such earnest efforts, CSG made its due contribution to the harmonious economic and social growth.

CSG is fully committed to the striving for the best campaign



Serving six prioritized user groups to improve

their living standards

this picture, the flower farmers were picking roses, which would be made into fresh flower cakes and sold at the market. Yunnan Power Grid provided quality power supply to the pastry businesses in Kunming city to help them deal with frequent thunderstorms. In this picture, the flower farmers were picking roses, which would be made into

We visited 8,406 villages to replace their electrical equipments and old wires and lamps; ensure power and oxygen supply to livestock farms; provide power service to farmers who dug wells to fight against draught and support agricultural development; spread knowledge on power usage and provide power-related services by organizing "mobile working station"; and so on.

Power Supply Bureau of CSG won praise from local residents after

We visited 38,131 communities to carry out power usage safety check; replace or repair power distribution facilities and low voltage lines: educate local residents to use power safely and save power; process the power supply applications of new residential buildings on-site; and so on.

Supply Station of Hainan Power Grid explained power usage knowledge to primary school students

We visited 2,489 schools to spread the knowledge about power, green and safe power, in particular; set up power supply fast-track channel; appoint customer managers to provide day-to-day service.

Hold first key clients workshop



CSG held the first grid-wide key clients workshop. CSG management staff talked to kev clients on a face-to-face basis, giving update of power supply and demand, power feedback, addressing actual problems emerging from power use

"CSG is at the forefront of serving the people. Therefore we should offer what the people need most and improve where we fall short most to enhance their satisfaction about power usage"

---- Zhao Jianguo, the Board Chairman, CSG

We visited 1,289 hospitals to check their emergency response plan and emergency power source, and those of "120" emergency medical center and other medical institutions; carry out emergency response exercises for power failure; train electrical technicians; set up power supply fast-track channel for them; and appoint customer managers for them.



▲ The service team of Anshun Power Supply Bureau of Guizhou Power Grid checked powe



Supply Bureau of Guangxi Power Grid visited enterprises to

We visited 9,215 enterprises to set up corporate clients files; help enterprises with high power consumption to plan their power usage; help them to develop emergency response plan; check emergency power supply; give lectures and diagnosis on power saving to help them enhance power efficiency and reduce consumption.



Service team of Hechi Power Supply Bureau of Guangxi Power Grid checked and repaired the power lines for

We visited 6,782 underprivileged households to check power lines inside their houses regularly; replace their old and broken electrical appliances free of charge; set up files for each of them; ease their financial burden in everyday life and work by organizing donation events among our CPC members and Youth League members.



▲ CGS launched "Social Activity Day" in Guangzhou to start the "Serving the People and Striving for the Best" campaign.

Responsibility: Feature report

Guarantee power supply to the Shenzhen Universiade to deliver wonderful Games





深圳2011世界大学生运动会合作伙伴

From Aug 12- 23, 2011, the 26th Summer Universiade was held in Shenzhen. With the theme of "start here", it attracted 7,865 athletes from 152 countries and regions who participated in 306 events (24 sport items), making a record in terms of the number of participants and

... Universiade Power Supply Statistics

Games venues

km Grade I power supply lines

CSG's principle for the power supply to the Shenzhen Universiade was to "mobilize the resources of CGS to support Guangdong Province, mobilize the resources of Guangdong Province to support Shenzhen and mobilize the resources of Shenzhen to support the Universiade". Thanks to our utmost effort, advance plan and reasonable arrangement, we provided excellent power service to the games, achieving "zero accident, zero mistakes and zero complaint" and delivering our promise of "complete success". Embodying the spirit of "overcoming difficulties, being united as one and pursuing excellence", we made positive contribution to the Shenzhen Universiade and helped to "make a difference".

Three challenges in power supply and guarantee to Shenzhen Universiade

terms of weather condition

stadium were in use.

Power consumption neak time

The Universiade coincides with power peak consumption in summer time.CSG's maximum coordinated load hit 111.27GWh, grid wide off-peak power load was 10 GWh, and the power grid was operating in an extreme condition, with acute power supply and demand situation.

Typhoon season

of stadiums

A large number

Shenzhen Universiade hosted 24 sports events and 306 sub-events, the largest one in terms of sports events and stadiums in Universiade. In total, 63 sports

As typhoon and thunderstorm hit at summer time, there were a lot of uncertainties in

Strengthening power supply capability

Enhance power distribution capacity. We carried out 335 projects to build or repair main grids and distribution grids and finished 500 KV Zhenbao line, the top one project of 2011, which was crucial to the power guarantee to the Universiade.



Expand power supply sources. The power supply was tight in South China during the Shenzhen Universiade. CSG reached "power exchange agreement" with State Grid Corporation of China to ensure that during the game time, the DC transmitted from the Three Gorges to Guangdong would reach the full capacity of the lines. We tried our best to ensure that power transmitted from Yunnan would be as much as the annual amount and that from Guizhou would be so much if possible. Moreover, we purchased additional one billion kilowatt-hour power from Hong Kong to be transmitted to Guangdong.

Reinforcements at five fronts

Emergency response management

To deal with unexpected extreme weather condition, CSG strengthened contingency response effort and established "1+16" advance contingency response system. Contingency response material reserve was put into place and all distribution centers were on duty 24 hours a day. The material could be distributed to key areas of Shenzhen within an hour and non-key -area within 1.5 hours.

Information security

CSG renovated and upgraded security protection system for the second time, which included control centers at various levels, self-supplied power plants, substations of 220 KV and above, 110 KV substations in Shenzhen to ensure that there was zero information security accident, zero information system operation accident and zero sensitive information leakage.

Power grid security

We deployed 381 armed policemen and 7,580 security staff to provide 24-hour surveillance to the power grid. We set up a power-related crime prevention and fighting center in cooperation with the Public Security authority to achieve the goal of zero power equipment theft and damage case.

You have accomplished the first formidable task in power supply guarantee for the Universiade which was critical and of worldwide influence. The success of Opening Ceremony was not possible without CSG's contribution. State-owned Assets Supervision and Administration Commission of the State Council (SASAC) is proud of you and other state-owned enterprises are proud of you.'

— Wang Yong, Minister of SASAC

Power grid and equipment safety

To ensure that all power supply equipment for the Universiade was of "zero defect", CSG carried out test and examination, patrol, maintenance and hidden trouble-shooting for important equipment. Altogether 1,980 equipment defects were repaired and 1,627 hidden troubles were solved.

Maintenance of venues

We invited experts to conduct power supply safety evaluation for games venues and other important places, identifying and solving 1,388 problems.

Zhenbao power transmission line put into production 18 days ahead of schedule

On 12th, June, CSG annual key project and the key power guarantee project-500Kv Zhenbao power transmission line was put into service. 18 days ahead of schedule. Zhenbao (From zhenzhou to Baoan) power transmission line is the important link in Power Transmission from Fast of Guangdong, and will add another 4.5GWh power transmission on a daily basis from east Guangdong to west Guangdong, and will effectively alleviate power shortage in Donggguan and Shenzhen and address the off-peak power limits on 1 GW during the Shenzhen Universiade period, and therefore, provide a safety net for the power guarantee mission to the Universiade.







Board Chairman's Speech | 12 11 A Myriad of Twinkling Lights, Great Rapport of CSG



Power Supply

CSG's core responsibity is to provide safe, stable, reliable and quality power supply for sustainable economic and social development. CSG has always been clients-oriented and put power grid safety and stability at its top priority. CSG has taken very specific measures to ensure safe production and has been constantly improving power supply reliability. CSG is striving to deliver world class power supply service.

■ Quality Service >> ■ Safe production >> ■ Reliable power supply >> ■ Emergency management

Zero major power grid and equipment accident

The annual power outage of an urban user was 5.20 hours on average, down by 21.92% year-on-year.

21.92%

69.7 billion Yuan was invested in power grid construction.

69.7 billion Yuan

>> ■ Power grid construction >> ■ Electricity equipments protection >> ■ Science and innovation



CSG is clients-oriented, and always attaches high priority to clients' demands.CSG has established a comprehensive client service mechanism to deliver quality, convenient and efficient power service.

Power Supply Pledge

CSG published Power Supply Service Pledge, CSG Code of Staff Service, and Fair, Just and Open Power Dispatching Measures. The three documents have brought CSG's service standards in line with international leading power grids, and set higher standards than national ones.



Power Supply Pledge

- 1. 99.9% power supply reliability in urban areas, 98% voltage qualified rate at urban residents end, 99.5% power supply reliability in rural area, 92% voltage qualified rate at rural residents end.
- Advanced notice /announcement for planned outage and power rationing

No random outage to residents' domestic power

- Once outage occurs, power supply emergency repair team shall arrive on scene within 45 minutes in urban areas, 90 minutes in rural areas and 2 hours in remote areas. Power shall be restored within 4 hours in urban areas and 5 hours in rural areas after arrival of the repair team.
- Power supply program response: Response should be made in no more than 3 working days, 7 working days, 15 working days and 30 working days to residents, low voltage clients, high voltage single power, high voltage dual power clients. Power meter and power connection: Power meter shall be installed and power should be supplied in no more than 3 working days, 5 working days, 7 working days to residents, low voltage clients and high voltage clients.
- Power supply should be resumed to arrears clients once bills have been settled.
- Clients waiting time in CSG business hall should be no more
- 90% of phone calls to power supply hotline 95598 shall be put through within 20 seconds.
- 100 power saving service training programs to 1,000 key clients shall be held annually.
- 10. Power supply service hotline 95598 takes clients consultancy, default handling and complaints on 24 hours basis.

National power supply stan	dard	CSG power supply pledge	2011 performance
Power supply reliability rate in urban areas shall be no lower than (%) 99	99	99.9	99.9406
Voltage qualified rate at urban residents end should be no lower than (%) 95	95	99.5	99.48
Once outage occurs, power supply emergency repair team shall arrive on scene in urban areas within 60 minutes	60	45	36
Once outage occurs, power supply emergency repair team shall arrive on scene in rural areas within 120 minutes	120	90	63
Once outage occurs, power supply emergency repair team shall arrive on scene in remote areas within 4 hours	4	2	1.5
Power supply program response shall be made in no more than 8 working days to low voltage clients	8	7	5
Power supply program response shall be made in no more than 20 working days to high voltage single power clients	20	15	12
Power supply program response shall be made in no more than 45 working days to high voltage dual power clients	45	30	21

Upgrade marketing service and management

- CSG has established a standard marketing mechanism, system, flow and has laid solid foundation for a standardized and integrated marketing information system.
- CSG has established clients service and solution center and and a professional supervision mechanism and reinforce technical support to energy saving service.
- CSG has standardized clients complaints processing platform to consistently improve complaints processing workflow.CSG has a three-level complaints supervision mechanism to boost service quality.
- □ CSG has streamlined clients investment interface, optimized internal management flow and coordinated projects implementation time to achieve a highly efficient business flow.
- CSG has established clients' information processing center to safeguard clients' information. No clients' information leakage has occurred.

Marketing and Clients Service Center **Auditing Center** Function positioning Establish clients service and solutio Pilot unit angzhou Power Supply Co., Ltd Guiyang Power Supply Bur **Clients service** and solution center ower Saving Service Center Power Measuremen Center Function positioning e centralized management of measurement installation Pilot unit Pilot unit Naning Power Supply Bureau

Convenient service



Designated Business Hall

Process all related business

Online Business Ha

Provide 14 services including power bill inquiry, on-line payment, electronic bill, clients information update, etc

Convenient Service

95598 客服中心 🕡

Customer Hotline

Customer hotline 95598 provides 13 business application, including high voltage and low voltage application, transfer of ownership, business suspension, resumption, etc.

Provide services including on-site business application, on-site payment.

SMS Business Hall

Monthly power bills will be tested to clients, in case of power failure, reasons causing the failure and estimated power restoring time will be tested to clients



Customer hotline 95598 receives clients' inquiries and plays a coordination role in addressing clients' requests.

Customer hotline 95598 has the following functions

default reporting and repair business inquiries power bill inquiries complaints, reporting and suggestions

Customer hotline 95598 provides 24 hour non-stop service



Customer Satisfaction Assessment

CSG has been involving in 3rd party research on Customer Satisfaction to timely understand clients concern, respond to clients demand and constantly boost power supply quality.

- □ CSG commissioned Gallup to conduct 3rd party satisfaction survey, and achieved a customer satisfaction score at 75, one of the highest in China.
- ☐ The power supply service of Guangdong Grid Company has ranked number one in satisfaction among top ten service sectors for six consecutive years, and ranked number one in satisfaction of public services assessment in Guangdong Province for
- □ Guangxi Power Grid was ranked "very satisfactory" in government institutions
- ☐ Yunnan Grid Company ranked number one in public satisfaction ranking of top ten service sectors of Yunnan Province for three consecutive years.
- ☐ Guizhou Power Grid scored 91.9 in public utility key sector survey, ranking number one.
- Guangzhou Power Supply Bureau has ranked top for 11 consecutive years in customer satisfaction survey in Guangzhou public utility service.
- ☐ Shenzhen Power Supply Bureau has ranked first in public satisfaction ranking of top ten service sectors of Guangdong Province for three consecutive years. ranking number one in the province public utility sectors.



10 key sector customer satisfaction survey in Guangdong is

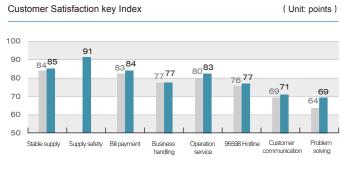
conducted by the third party (Guangdong Province

Investigation Investigation & Research Center). The Center has

selected 10 public utility service sectors, namely, power supply. telecommunications, gas, postal service, banks, insurance, oil

supply, tourism to conduct customer service survey

Background overview



■ Year 2010 ■ Year 2011

Improve Customer satisfaction

Customer satisfaction is a dynamic index, under the backdrop of rapid increase of power demand; customers are more demanding in power supply safety, stability, reliability and diversified and tailor-made power service. Power grid and power plants are under the dual pressure of "power supply" and "sound power supply service". CSG has made every effort to strike a balance between customer satisfaction and cost control and has identified customer communication and problem shooting as the key areas to improve customer satisfaction.



▲ Bettering communication with clients

Customer communication

Problem shooting CSG has conducted customer information planning to implement customer segment analysis. The company sets full-time account manager to enhance customer service efficiency and quality.

CSG has facilitated a centralized telephone service, and is constantly improving customer service value

chain starting from customer demand analysis, transmission to response.

■ Safety production

In 2011, water resources (rainfall) were scarce under CSG's service area. Coal-fired power generation units were not motivated as coal prices rose. Therefore, demand exceeded supply. Complicated system operations, demanding project operation, combined with extreme weather condition have created challenges in safety and stability operation. CSG has been sticking to the principle of "Safety first, prevention -based and comprehensive management", practicing safety production, closed loop management and control, enhancing power grid operation and management, making every effort to maintain equipment maintenance, and has effectively guaranteed power grid safety and orderly power supply. In 2011, no major /significant accidents occurred in CSG, and for the first time, CSG achieved accident reduction and default reduction, and key operation index ranked best.

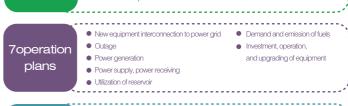
Stable operation of power grid

CSG has reinforced 4-level coordinated mechanism, and has adopted a number of effective measures in ex-ante analysis, reinforcement, and dynamic follow-up to boost power grid operation level. For the first time, CSG has achieved zero default operation in 50±0.1Hz grid-wide and 50±0.1Hz of Hainan Island Grid (for 141 days). The comprehensive grid-wide average voltage qualification rate has maintained 99.9999%.



- □ System operation department has established to enhance management and coordination capability on power grid safety operation.
- CSG has compiled 12th Five-Year-Plan on Safety Production, for a comprehensive analysis on pros, cons, opportunities, challenges of safety production.
- CSG has reinforced system operation and planning management, and has identified 4 operation objectives, 22 key indexes. 7 categories of operation plans and 9 categories of risk prevention measures.







indicators

- Equipment upgrading and counter-measures

17 | A Myriad of Twinkling Lights, Great Rapport of CSG Power Supply | 18

Sound equipment operation

CSG has reinforced equipment pre-run and regular testing management to ensure safe operation of key equipments. The company analyzes and addresses key equipments defects timely and facilitates condition-based maintenance in a steady manner. In 2011, CSG achieved remarkable equipment operation maintenance, no major equipment accident occurred.

- CSG has compiled 146 technical codes on power transmission and power distribution equipments, which has effectively addressed existing problems in national standards and industry standards. These codes have standardized technical specifications and have made specific and viable requirements on power transmission and power distribution equipments.
- ☐ The company completed 82,600 pre-run and regular testings and identified and addressed 1,233 defects.
- □ CSG reinforced special maintenance measures on key equipments, made and practiced 272 special maintenance programs on key equipments, covering 64*500Kv power transmission lines, 26*500Kv transformers and 182*500 KV circuit breakers.
- □ CSG rolled out mature live testing and condition monitoring technology and installed 2,082 on-line monitoring equipments on 220Kv and above equipments.
- □ CSG facilitated condition -based maintenance in a steady manner, and completed condition assessments on 27,200 transformers and circuit breakers at voltage of 110Kv and above



▲ Longhua Power Supply station, Haikou Power Supply Bureau is checking and addressing hidden dangers.



▲ Power generation units in maintenance

665

Eagle on snow mountain



River Nu Station, Yunnan Power Grid Company operates and runs 220KV Lanfu power transmission line, the line with the biggest altitude difference in China. The line, with the total length of 111.237km, spans Biluo Snow Mountain with the altitude of 4,000 meters, acts as the only power transmission line connecting River Nu Valley and the power grid. The altitude difference exceeds 3,000 meters. For every single inspection trip, River Nu Station staff need to trudge over Biluo snow mountain for 350 kms, including 50 kms no man's land and primitive forests. Every trip takes more than 20 days. Depending on power transmission line status, six to a dozen trips are needed per year. In the past four years, staff accomplished operation and maintenance tasks, and is named as eagle on Snow Mountain" by the media. In April, 2011, the station was awarded "Collective Prize on Moving China, Power Sector"

For futher reading, please visit feature reports on "Eagle on snow mountain" at CSG official website.

Standardized safe production management

CSG attaches priority to safe production risk management and rolls out responsibility system, enhances safe production awareness, and consistently improve safe production quality.

- CSG has completed overall design on production system, core business streamlining, and business blueprint, and for the first time, compiled Technical Code System Table and rolls out grid wide.
- □ CSG has established risk prevention and control mechanism on power distribution, vertical communication and horizontal synergy among related departments, expanded secondary system, on-site operation, equipment management to realize a comprehensive, forward looking and effective operation risk management prevention and control.
- □ CSG has involved constructors in risk management system, in total, 260 constructors has practiced risk management.
- □ CSG has involved county-level power plants in risk management system; every provincial -level power company has selected 30% county-level power plants to practice safe production risk management system, conduct risk assessment and control.
- □ CSG launched a number of campaigns with the theme of safe production, including: "Year of safe production", "Month of safe production", 1st Safe Culture Strategy Research Forum, safe production training programs. The events have successfully created a "share and help" safe culture and enhanced staff awareness and skills on safe production.
- □ CSG has rolled out safe production risk management system in 79 units grid wide. By the end of 2011, 50 units, or 63% of them have been awarded silver or above safe production and risk management certification by external assessments.



▲ Ankang Award Labour Skills Competition



put safe production responsibility in place

- CSG is committed to national safe production laws and regulations, and industry regulation and standards, and has published CSG Safe Production Regulations to assign safe production responsibility to staff at all levels.
- □ CSG has transformed safe production supervision management model to an Ex-Ante one. A total process supervision management model based on power grid, equipments, operation risk has been established and priority has been shifted to Ex-Ante, to ensure safe management responsibility and
- CSG has integrated safe indicators into performance assessment and has achieved step-down assessment. CSG has published Safe Production Accountability Management Regulation to reinforce accountability system.
- CSG carried out investigations to production accidents and highlighted root causes to accidents to prevent repeated occurances. The company has strengthened safe production management and training to address major problems and ensure that safe production can be controlled and is in a controlled state

19 A Myriad of Twinkling Lights, Great Rapport of CSG

Address unbalanced power supply and demand situation

In 2011, southern china was confronted with much less rainfall, insufficient coal supply, and persistent high temperature. Power demand exceeded power supply and the year was the most challenging year in terms of power supply since CSG was founded.

- $\hfill\Box$ In summer flood period, the actual power transmitted from the 58GW installed capacity was recorded at 20GW only.
- □ In summer period, coal-fired power generation units power supply decreased by 15GW because of coal shortage.
- ☐ In Aug and Sept of 2011, 10GW off-peak power use was recorded in 34 days, with daily off-peak power use at 10.55GW.

Under the grim supply and demand situation, CSG bettered communication with related provincial governments and regions, and made every effort to guarantee coal supply and power generation, and made flexible adjustments and optimization on cross-region dispatching, arranged reasonable maintenance and repair of generation units, and reinforced equipment operation and maintenance to increase power supply and successfully addressed power shortage.

Three Guarantee Principle



insufficient rainfall



In 2011, the overall rainfall recorded at major river catchments was insufficient and reflected abnormal drought-resistance during flood season. There are higher hydro-powered generation units in the 5 provinces/regions in CSG's service area. Unfortunately, River Hongshui and River Wu recorded 75% less rainfall compared to past years, and River Langcang recorded 14% less

Insufficient coal-fired power generation



Under the adverse impact of rising coal prices, coal-fired power plants suffered from severe defici and were not motivated. Coal-fired power generation units were not running at the highes possible capacity.

In CSG's service the overall power shortage was over

Guangxi, Yunnan, Guizhou provincesonce recorded over

■ Five measures to address power supply shortage

Bettered communication with five provincial governments and regions

Provincial government played a guiding role in the communication process. CSG urged related government departments to make better coordination efforts to ensure coal-fired power generation. CSG urged Guangdong, Guangxi and Guizhou governments to promulgate power generation subsidy policy and therefore, effectively alleviated cost pressures on coal-fired power plants.

Coordinate and adjust cross-region resources

CSG made full use of regional/provincial load differences and reinforced cross-region adjustment to support drought resistance and power supply guarantee in the west. CSG took the initiative to negotiate with the State Power Grid and practiced Three Gorges Power Trading and successfully won power supply support from central China. CSG managed to have CIP's support and bought more CLP power to support peak power consumption in Guangdong province.

Organize local power generation units to supply power at peak consumption period

CSG supported Guangdong provincial government to subsidize gas-powered units, and dispatched emergency power generation from installed power generation units and increased 2.5GW power supply to Guangdong. CSG made flexible arrangements in generation units and reinforced equipment operation and maintenance to increase power supply.

Ensure safe and stable power grid operation

CSG put all measures in risk management and risk prevention in place

Reinforced orderly power use management

CSG worked closely with government at all levels and published Orderly Power Use Program based on power supply and demand situation, and adhered to the policy of " coexistence of power supply guarantee and power cuts", discouraging unreasonable power use and advocating electricity saving and optimized electricity use.

Guangdong Power Grid

Guangdong Power Grid tapped its potential in power supply and put 500Kv Zhenbao power transmission line in operation. Guangdong Power Grid played a coordination role and took the initiative to install generation units to supply emergency power and facilitated government's subsidy to 9E generation units; it managed to get support from the State Power Grid, Guangxi Power Grid, Yunnan Power Grid, CLP, and in total, it managed to get additional 2GW power for Guangdong province and provided strong support for the $province \'s\ social\ and\ economic\ development.\ Guangdong\ Power\ Grid's\ practice\ is\ an\ innovative\ approach$ in addressing power shortage in terms of cooperation among government, power plants and clients.

Guangxi Power Grid

Guangxi Power Grid did an excellent job in load forecast and orderly power use dispatching, and perfected off-peak early warning mechanism. Guanoxi Power Grid published and put load-side dispatching management measures in place and guided strict power supply in accordance with index. The Grid convened key account workshop and successfully persuaded high energy consumption plants to spare 0.6GW load to local residents and high value-added small and medium sized companies.



Yunnan Power Grid

Yunnan Power Grid practiced dispatching management and information disclosure, and made dynamic audit and checking of west-to-east hydro power capacity and made timely adjustments on power transmission cap to optimize key project node. In 2011, blocked power in west Yunnan was 1.041 TWh, representing 846GWh reduction compared to year 2010 and facilitated an open and highly efficient use of water resources in blocked areas



Guizhou Power Grid

Under the backdrop of Sleet disaster , coal shortage, insufficient rainfall, Guizhou Power Grid bettered its communication with the headquarter and local governments, optimized hydro and coal-fired power operation, made dynamic tracking of inflow to reservoir , made reasonable maintenance arrangements on coal-fired power generation units and made every effort to ensure power supply to the province and other

effects CSG gave a full play to its platform role and coordinated cross-region resources to guarantee power supply and therefore supported rapid economic growth in the 5 provinces and regions, and realized triple win situations (namely, satisfaction from government, power plants and clients) The peak coordinated load hit

representing 8.5% increase compared to the previous year

coordinated power supply and incoming power hit

representing 9.71% increase compared to the previous year

successfully addressed

historical high in coordinated load

21 A Myriad of Twinkling Lights, Great Rapport of CSG

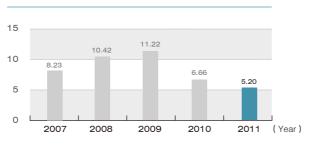
■ Power supply reliability

Power outage index is the key index to assess quality service in power sector, reflecting the comprehensive management level in power grid construction, production technology, safety operation, power supply, quality service, employee qualification and human resources development. CSG shall prioritize outage reduction as its core competence construction, and bring CSG's practice in line with international leading power companies and do its utmost to deliver quality power service to the clients.

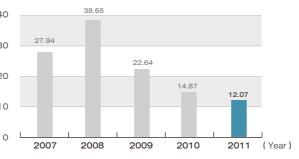
CSG power supply reliability (RS-1) in urban areas was recorded at 99.9406%, 0.0166% improvement than the previous period, SAIDI was 5.20 hour per household, 1.46 hours reduction than the previous period, power supply reliability (RS-1) in rural areas was recorded at 99.8623%, with 2.80 hours improvement than the previous period; SAIDI was 12.07 hours per household.

- ☐ CSG has formulated Power Supply Reliability Assessment Standards for Prefecture and City level Power Plants. The Standards will help to analyze weak links in power supply reliability and tailor make solutions to improve power reliability.
- □ In May, 2011, 5 power supply companies under the umbrella of CSG were awarded as Leading Power Supply Reliability Companies in China by the State Electricity Regulatory Commission (SERC). In total, 20 companies were awarded. Among them, Shenzhen Power Supply Bureau and Zhongshan Power Supply Bureau ranked No.1 and No2 in clients outage index in "Level A Leading companies in power supply reliability", recording 1.48 hours per household outage, and 1.5 hours per household outage.
- SAIDI in urban areas of Guangdong Power Grid was 2.01 hours, ranking number one in provincial level power grid companies in China.
- □ Shenzhen Power Supply Bureau has been continuously improving its urban customers' SAIDI, and in 2010, its urban clients SAIDI was reduced to 1.28 hours.

Average outage for urban clients under CSG's service area (unit: hour per household)

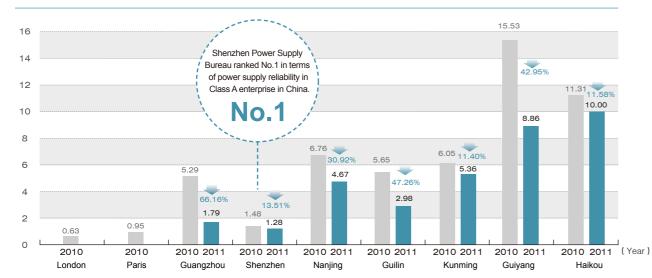


$\label{prop:control} \mbox{Average outage for rural dients under CSG's service area} \quad (\mbox{unit: hour per household})$



Note: Average outage for rural clients under CSG service area is based on

SAIDI comparative analysis between key cities in CSG's service area and international cities (unit: hour/per household)

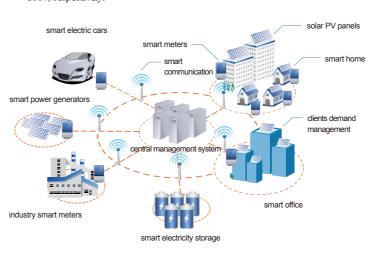


Note: SAIDI differences among different cities reflect differences in power grid development and investment.

Establish a reliable power distribution network

CSG reinforced power distribution construction and improved power distribution management. The company is committed to establishment of a smart, efficient, reliable and green power distribution network so as to lay a solid foundation to guarantee client's power use.

- CSG invested RMB26.636 in power distribution network construction. 35kV- andbelow Power distribution line with the total length of 35,592km and total capacity of 2000MVA was put into operation.
- CSG facilitated standard design and typical costing plan of power distribution network. In 2011, 50% of county-level power grid construction projects achieved standard design and typical costing plan of power distribution network.
- CSG facilitated power distribution automation pilot work in 7 power supply bureaus, including Guangzhou, Shenzhen, Zhongshan.Power distribution network coverage rate in Guangzhou Power Supply Co.Ltd, Shenzhen Futian Power Supply Bureau and Zhongshan Power Supply Bureau reached 41% 75%. 100% respectively.



Sino-Singapore Knowledge City
Establish modem electricity demonstration

Sino-Singapore Knowledge City is located at the northern zone of Guangzhou Science City. CSG has adopted state-of-art and smart technology to establish the Knowledge City as a domestic leading and first rate modem electricity demonstration zone. In power construction, a number of leading technologies are adopted, including straight voltage drop from 220kV to 20kV, indoor substation, high voltage line cable laying; in terms of smart grid, CSG has realized power distribution network automation by digital substation, comprehensive tunnel monitoring and management system. Power distribution network automation effectively provides reliable and quality green power and has laid a solid foundation for customized service.

■ Comprehensive outage management

----- Smart power distribution network -----

CSG sets outage targets and assessment to reinforce outage management. Every effort is made to minimize redundant maintenance, repeated outage, overtime outage and unscheduled outage.

- CSG has established outage statistic system at grid, province, prefecture and county level.
- CSG improved power dispatching mechanism covering province, prefecture, and county levels, and comprehensive outage coordination mechanism covering power generation, power transmission, power distribution and power consumption process. The company used indicators like repeated outage rate to optimize outage and reduce repeated outage.

Background knowledge

20kV power distribution lines

20kV power distribution lines can meet demands on multi-loop and achieve high reliability, and has 2 times power transmission capacity compared to 10 kV lines. 20kV power distribution lines' power supply area is 2.5 times than that of 10kV lines, but with 1/4 of line-loss rate only. 20kV power distribution line is ideal for clients with significant power demands and is the most optimized power supply method for power grid as it help to reduce the numbers of substations and line corridor footprint.

y 23 | A Myriad of Twinkling Lights, Great Rapport of CSG

On-load Exercises

CSG promotes on-load exercises, reduces outage frequencies and tries its best to realize no-interruption to the customers during repair and fault checking. Provincial power grids take their local circumstances into consideration and carry on-load exercises. Guangdong Power Grid practiced 10,000 on-load exercises, Guangxi Power Grid carried on-load exercise skills training, Yunnan Power Grid has achieved on-load exercises at power distribution networks, Guizhou Power Grid conducted on-load exercise skills competition, Hainan Power Grid facilitated standardized and regular on-load exercises.

CSG on-load exercises in 2011

subsidiary branch	On-load exercise	outage reduced (10,000hours·household)
Guangdong Power Grid	13175	122.24
Guangxi Power Grid	1401	11.56
Yunnan Power Grid	2956	15.09
Guizhou Power Grid	1643	7.25
Hainan Power Grid	265	0.86

Express Supply Restoration

CSG has been improving power failure management system; emergency repair staff arrived on scene in strict compliance with service pledge, and delivered an efficient repair service.

- □ CSG has established time limit assessment mechanism on power resumption and repair service and updated repair service progress to clients on timely basis.
- □ Thanks to CSG' efforts in power distribution network automation, fault location reduction, fault isolation reduction, power resumption efficiency improvement, the average power resumption time in Guangzhou, Shenzhen and Zhongshan city reduced from 219、197、195 minutes to 144、141、118 minutes.

Average power resumption time reduced by

34.25% 28.43% 39.49%

25 | A Myriad of Twinkling Lights, Great Rapport of CSG

Yunnan Power Grid conducted helicopter on-load exercise



Yunnan Power Grid conducted helicopter on-load exercises at high altitude compact 500kV power transmission lines, the first ever in China. Helicopter on-load exercises need fewer hands, and shorten operator's exposure under strong electric field, and therefore, much safer

Power distribution network fast



Shenzhen Power Supply Bureau constructed automated power distribution network-based power resumption system in core zones and used remote functions to achieve fast location and long distance isolation. The bureau leveraged GPS monitoring and PAD to dispatch staff for on-site service, and average arrival time was within 20 minutes, achieving 30% time reduction.

Power supply guarantee

Based on success in power supply guarantee to Asian Games, CSG made Guidance to Power Supply Guarantee standard and compiled Manual on Power supply Guarantee, practiced and improved power supply guarantee experiences and accomplished power guarantee missions to a number of significant events.



Zero milliseconds switch realized by Magnetic Flywheel Emergency Power Car



In a state leader's inspection tour to Guangzhou, Guangzhou Military Command was in charge of security. Guangzhou Power Supply Co., Ltd used a magnetic flywheel emergency power car to avoid outage caused by abrupt load changes. Political Department of Guangzhou Military Command wrote a letter to CSG to express their appreciation.

Background knowledge

Magnetic flywheel emergency power car is equipped with a number of domestic leading technologies, capable of integrating UPS and power car, delivering online protection status and realizing zero milliseconds switch, therefore, significantly enhances power output stability.



■ Contingency management

Prompt response in disaster relief

CSG has always taken the initiative to undertake responsibility in emergencies. The company has made specific measures and contingency plans in natural disaster strike (including sleet snowstorm, typhoons, earthquakes, and other natural disasters). Under frequent outbreak of extreme weather conditions, CSG successfully launched disaster relief programs, including sleet and snow disaster in Yunnan and Guizhou in early 2011, Yingjiang earthquake in 10th, March, 2011, Typhoon Nesat, Nalgae strike in Hainan. The company's prompt response in power network repair and power restoration is widely recognized by the public. Thanks to well planned preventative measures, CSG's disaster relief efforts turned out much better than that of 2008.



repair services after the earthquake strike in Yunan

Improve disaster relief and contingency management

- CSG revised and compiled contingency plans in natural disaster strike (including sleet snowstorm, typhoons, earthquakes, and other natural disasters), standardized contingency disposal processes and improved contingency management.
- CSG published disaster relief manual and compiled sleet and snowstorm map, seismic zone distribution map, typhoon map, and de-icing devices map.
- contingency response, dispatched 170,000 disaster relief person/times

Improve anti-icing measures

- CSG invested RMB1.145 billion and bought another 25 DC de-icing devices and 29 vehicle-mounted de-icing equipment devices.
- CSG installed de-icing switch and optimized connection and operation steps of de-icing devices. The company successfully reduced device connection time from 3 hours to 1 hour and improved de-icing efficiency.
- CSG formulated a number of technical codes including Guiding Principles for DC De-icing Device Configuration, and conducted research and implementation of aerial earth wire de-icing technical programs. The 1st de-icing system for earth wire achieved

Improve anti-typhoon measures

- CSG conducted typhoon information collection, typhoon meteorological, comparative study between China and overseas standards, comprehensive preventative measures and put forward comprehensive technical anti-typhoon measures for powe transmission and distribution lines in strong wind condition in southern China.
- CSG completed pilot upgrading to 18 loops of power lines in Guangdong and coastal regions of Hainan



network and power distribution network in some areas of Guangdong Province, Guangxi Autonomous Region, and Yunnan Province, Guizhou Province suffered icing. In total, icing occurred to 1,866 lines in CSG service are and 163 townships were affected

In Jan 2011 main nower transmission lines at main

and effects

CSG dispatched 1.022.426 contingency staff/times. 72,288 contingency cars/times, and invested RMB 183.53 million in repair and after 1 month painstaking efforts and repair, resumed power supply to all effected power transmission lines, substations, townships and residents



On 10th.March. 2011. Yingiiang County. Yunnan Province was shattered by earthquake at the magnitude of 5.8 Richter Scale. Some 220kV transformers were tom apart, 4 110kV substations were forced out of operation, power supply failed in Xingiian County and Lianghe County completely, and 123,600 households

> Coping measures and effects

Yunnan Power Grid organized 1.971 contingency staff and 214 contingency lighting device, 21 contingency power generation units, 240 tents, and within 22 hours, power was resumed in the earthquake stricken area



Late Sept and early Oct. 2011, typhoon Nesat. Nalgae and tropical storm attacked Guangdong Guangxi and Hainan. Power transmission lines tripped, substations were forced out of operation, more than one million household lost power.

and effects

Guangdong Power Grid completed anti-drought and anti-flooding inspection, identified and addressed 272 hidden dangers, contingency response mechanism actively and timely and successfully fought against the effects of typhoon; Guanqxi Power Grid reinforced anti-flooding monitoring, and and sent out rescue team to restore power supply in the shortest possible time; Hainan Power Grid sent out rescue teams of 31,460 technicians, 2,715rescue vehicles and achieved success in disaster relief.

Improve comprehensive capability in contingency management

CSG reinforced contingency management and upgraded emergency commanding and information management system organized and practiced video access to emergency commanding platform; the company compiled and updated headquarters 1+15 contingency plan to make the plan more practical and viable, and significantly improved comprehensive capabilities in contingency management

Fetablish linkage mechanism

Compiled and updated contingency plans

 CSG branch/subsidiaries has established linkage mechanism with government departments and related

- business and risks.
- In total, CSG compiled and updated 10,997 contingency plans, covering grid-wide
- CSG connected branch companies and subsidiaries' video to emergency commanding platform and realized real-time and long distance access to on-site video files.
- O Guizhou Power Grid and Yunnan Power Grid established linkage mechanism with related provincial departments. They worked with Meteorological Agency and provided power sector meteorological service, they worked with Contingency Management Office, Transport Department and Highway Management Bureau to issue "Special permit for de-icing and power supply"
- O EHV company worked with Hainan Marine Bureau to establish a linkage mechanism on submarine cable protection, and successfully addressed 10 anchorages in submarine cable protection zone and guaranteed submarine cable safe operation.
- Linkage mechanism of emergency supplies
- O CSG classified and recorded emergency supplies on the basis of emergency command information management system and realized
- o flexible dispatching of emergency supplies and enable a better coordination and use of emergency supplies under emergencies.

Reinforce contingency drills

CSG reinforced contingency drills and improved capabilities in addressing power grid accident and provided guarantee to safe and stable power grid operation.

 CSG rolled out drills and conducted research on Double Blind drills to improve effects of contingency drills.



Background knowledge

Double Blind drills

Double Blind refers unannounced drill time, venue, scene, and accident. The general commander of the drill makes random choice on time, venue, scene and accident. Drill participants should take their initiative to respond based on the scenario. The main purpose of Double Blind drill is to test actual contingency response and handling

Contingency drills in flooding season



■ Power grid construction

Land scarcity within CSG's service area, combined with other factors including environment concerns, railway networks, highway networks, relocation and land compensation fees for power transmission lines and substation construction has created enormous difficulties for power grid construction. Rising power grid construction cost and construction time frame made power grid planning a formidable task. CSG works closely with governments at all levels and stakeholders to put power grid planning in place and have laid a concrete foundation for power supply. In 2011, CSG invested RMB69.7 billion in power grid construction and put 11 key projects into operation on time and Liangdu project started operation on schedule.

Power grid planning and investment

The company completed system design on CSG main grid framework and system design of 5 provinces and regions in the 12th Five-Year-Plan , secondary system planning, and amendments to 12th Five-Year-Plan for 65 prefecture-level cities, and incorporate power grid planning in national power development plan.

Hainan Power Grid invested RMB185 million and completed 3*220 kV double loop lines, representing a historical development from single loop network to double loop network.

Power grid investment (Unit: RMB 100 million) 500 500 457 400 389 300 200 179 166 219 184 232 200 100 127 119 94

2009

500kV and above 220kV

2007

Key power grid construction projects went into operation

Item	Project	Operation time
01	Huizhou Zhenzhou Power Transmission and Power Transformation Project	16th, May,2011
02	500kV Shenzhen Kunpeng-Baoan Power Transmission Project	12th, June, 2011
03	500 kV Fengyi Substation Expansion Project	26th, June, 2011
04	220kV 2 Loop Project Guantang-Hongshi	26th, June, 2011
05	500kV Qingyuan Kuwan (Qingcheng) Project	28th, June, 2011
06	Huizhou Pumped Storage Project	11th,July, 2011
07	220kV Sanjiang Power Transmission and Transformation Project	5th, Aug,2011
80	500kV Gongguoqiao Power Transmission Project	17th, Oct, 2011
09	220kV Ruili Power Transmission and Power Transformation Project	26th, Oct, 2011
10	220kV Fudu Power Transmission Project	31st, Oct, 2011
11	500kV Huili Power Transmission and Power Transformation Project	3rd, Dec, 2011

■ Standardized management of power grid construction

2010

CSG reinforced 6 capital construction management including management on project, safety, quality, costing, progress, and technology and achieved "standardized management, standardized construction, safe and quality, green and environment friendly"

- A standardized system on capital construction management has initially taken shape, 25 class A system, 29 Class B systems, 11 standardized design and typical costing, 12 operation standards were published
- CSG organized 816 project owners' office and ensured every capital construction project is managed by its project owner.
- □ For the first time, all items in capital construction projects grid-wide were managed by landmark progress management. CSG made landmark progress plan and 3 level progress plans and used traffic-light system to control progress.

Power Facilities Protection

CSG take specific measures to comply with related laws and regulations and improved power facilities management and conducted power facilities protection. In 2011, no major power grid and/or facilities failure caused by damaged power facilities occurred and power grid stable operation was ensured.

Perfect regulations on power facilities protection management to facilitate a standardized and systematic management

Explore and promote new

methods in power facilities

protection and take a wide

range of approaches in

patrol

CSG's branch companies and subsidiaries formulated, compiled, updated and perfected regulations on power facilities protection, and identified specific job responsibilities and job descriptions, and standardized power facilities protection management flow.

security system and urged local public security

bureau to reinforce patrol and ambush efforts.

CSG established 1,377 patrol teams with 14,869
patrol staff. The company enhanced internal patrol
and incorporated power facilities protection in public

Actively promoted and used new power facilities technologies and new products to improve overall anti-theft capabilities

CSG promoted anti-theft technologies and products for power facilities with an accumulative investment of RMB 88.79 million and 80,074 sets of equipments.

Works closely with local governments to carry power facility protection

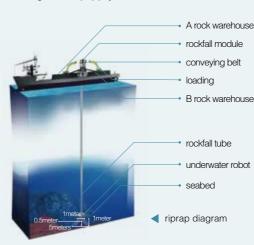
CSG established joint session system and urged local governments to perfect related laws and regulations and played a supporting role in joint law reinforcement actions with local Public Security Bureaus and Industry and Commerce Bureaus , and assisted Public Security Bureaus in joint examinations and cracked serious power-sector—related criminal offences.

Carry a wide range of publicity events on power facilities protection CSG played a supporting role in 671 government's publicity events, and took the initiative to organize 1,325 publicity events, sent 733,585 pieces of text messages, and sent out 2,281 publicity campaign cars to rural areas, made 10,499 publicity banners, distributed 2,996,580 pieces of power facilities protection leaflets and brochures, produced and posted 206,507 posters, and distributed 119,806 related publicity materials and brochures

Protect submarine cables

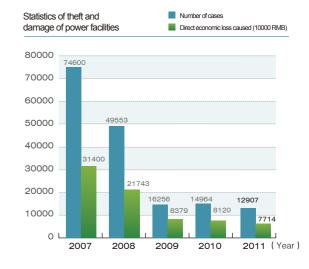
Frequent anchorages and fishing operation in submarine cable protection zone in 500kV Hainan Power Connection Project poses formidable challenges to submarine safety.

In Aug, 2011, the company launched submarine cable protection project and completed 260,000 tons of riprap. Rocks coated "armor" for 31km undermarine cable and significantly safeguarded submarine cable. It was the first time in China to have large scale of riprap project for submarine cables.



Achievement in power facilities protection

There were 12,907 thefts and damages of power facilities in CSG's five provinces and regions in 2010, a 13.7% drop over 2010; the direct economic loss caused by these crimes was RMB 77.14 million, 5 % drop than 2010. For four consecutive years, case number and direct economic losses dropped.



y 29 | A Myriad of Twinkling Lights, Great Rapport of CSG

CSG is one of the leading players in new technology application. The company is proud to have state-of-art power transmission technology, for instance: UHV DC power transmission, electricity triggering, light trigger thyristor valve, thyristor controlled series compensation (TCSC), fixed series compensation, high altitude compact power transmission lines, super conduct cable, to name just a few. CSG has the largest and the most advanced safety and stability control system in China, grid-wide WAMS (wide area measurement system), and demonstration projects on CCHP (combined cold and hot water power generation) and micro-grid, MW grade energy storage units. Application of new technology, new equipments has boosted technology development on one hand, and asked for more technical innovation on the other.

CSG's principle in technology innovation is "using independent innovation to achieve breakthrough, support development and guide future development". CSG's priority is to boost independent innovation competence, reinforcing scientific and innovation system, investing more on R&D, and talent pool. CSG's R&D competence has been significantly boosted by these effective measures.

Science and innovation achievement

Standard

CSG is the founding member of 26 international, national and industry 26 standards.

Projects and awards

First Prize, National Science and Technology Progress Award, 12 China Power Awards for Science, 1 China Patent Award. In 2011, CSG successfully applied 8 national-level scientific projects.

Patent

In 2011, CSG has filed 533 patent applications, and has been awarded 191 patents. In 2011, CSG's patent application and licensed patent have been increased by 376% and 110% compared to 2010 respectively.



Independent Technology Development and Practice of Complete Set Design of HVDC Power Transmission was awarded the First prize, National Science and Technology Progress Award, the most prestigious honor in science and technology the company ever received since its founding.

Independent Technology Development and Practice of Complete Set Design of HVDC Power Transmission was based on the first DC power transmission demonstration project of HVDC power transmission: ±500KV Guizhou-Guangdong Dual Loop DV power transmission. For the first time, the project has established HVDC power transmission integration technology system, and has realized independent design of complete set. The project has been awarded 9 invention patents, and 5 intellectual property software patents. R &D findings achieved in the project have been successfully applied to ±800 Kv UHV power transmission project, Nuozhadu DC power transmission project. The success marks a breakthrough in DC integration technology and has effectively facilitated the development of Chinese DC power transmission technology.

Establish Science and Technology Award Foundation

Thirteen members in the research team on Independent Technology

Development and Practice of Complete Set Design of HVDC Power

Transmission donated RMB5 million bonus to establish the Science and

Technology Award Foundation. CSG top management recognized their nobility

and generosity and decided to inject another RMB 5 million into the foundation to

award researchers in science and technology improvements.

Highway-development of power grid

± 500Kv Guizhou

– Guangdong Dual Loop
Project

The first HVDC power

transmission automation

± 800Kv Yunnan-Guangdong DC Project

transmission automation

HV DC projects:

China's high voltage and DC power transmission automation

demonstration project demonstration project Year 2007 Year 2010

Year 2011

□ Yunnan Power Grid rolled out research results based on SOA Integration research and application. The research results were awarded as "Top Ten Awards in Management Innovation and Technology Application in Power Sector in the 11th Five-Year-Plan".

Science and innovation plan

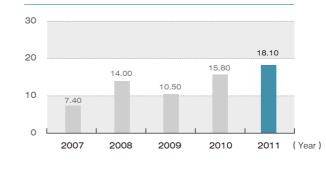
□ CSG has identified the overall guiding principle in science and technology development in the 12th Five-Year-Plan period and put forward 4 development objectives, specified 8 key science and research sectors, 17 key research areas, 60 key research projects, 6 technology innovation platform program and plan implementation guarantee measures.

 CSG establishes a scientific and comprehensive assessment index system with the priority on improving independent innovation capabilities, perfecting science and technology incentive and performance assessment mechanism to improve science and technology innovation impacts

Science and innovation investment

CSG has established a long term effective mechanism and constantly increases investment to science and innovation. In 2011, CSG invested RMB 1.81 billion on research and development, representing 0.46% main business revenue.

Research and development investment (unit: RMB 100million)



Background Knowledge

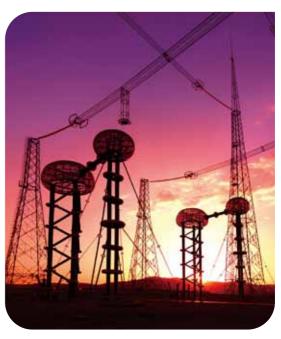
SOA integration research and application

SOA (Service-Oriented Architecture) is an effective technical solution to dig information resources and establish a sharing integrated and information synergy. SOA leverages dynamic WEB service flow interactive models to address real-time response of massive data processing and service access to boost platform's capabilities under different business scenarios.

■ Innovation system

CSG's R&D department plays the leading role in innovation, and leverages market opportunities to work with Chinese leading universities, research institutes, equipment suppliers to establish an open and extensive research and development.

- CSG has perfected science and innovation scheme and put incentive policies for science and innovation professionals in place, has established remuneration scheme based on R&D performances to involve every unit and every employee in science and innovation.
- CSG has implemented 3 key projects, namely "Development of leading scientists", "Recruitment and fostering of technical specialists" and "Introduction of overseas high caliber professionals" to optimize talent pool structure.



▲ ±800 UHV DC technology project lab (Kunming, Yunnan)

31 | A Myriad of Twinkling Lights, Great Rapport of CSG

Power Supply | 32

0

O Green

Economic Performance

CSG's fundamental responsibility is to comply with the state electricity price policy, enhance operation and management, reduce cost, improve efficiency, ensure value preservation and appreciation of state-owned assets, create more value for stakeholders.

■ Operation performance >> ■ Law Compliance >> ■ Cost reduction and efficiency improvement

■ Facilitate power market development >> ■ Serve economic and social development of the 5 provinces/regions

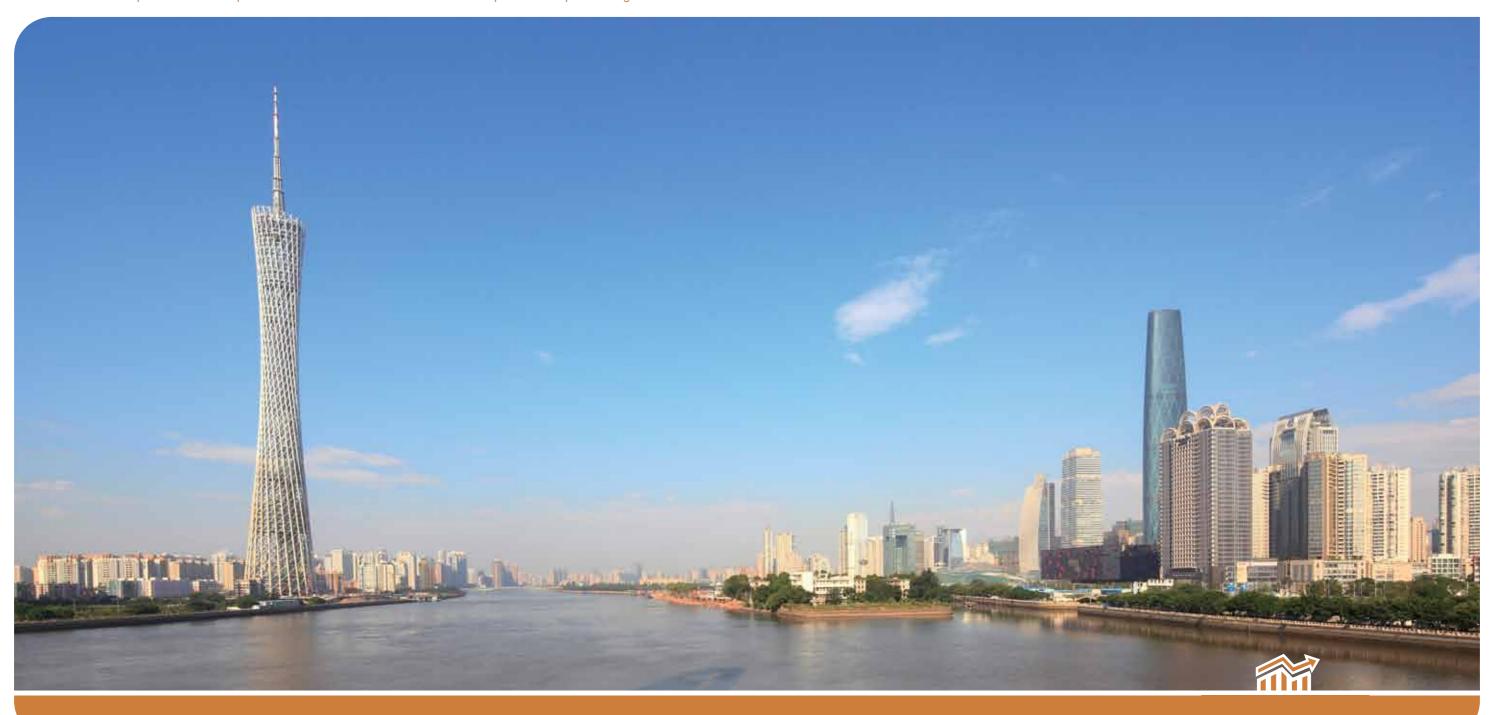
Power sold

Main business revenue

Total profit and taxation

666.8_{TWh} 389.4_{billion RMB} 33.7_{billion RMB}

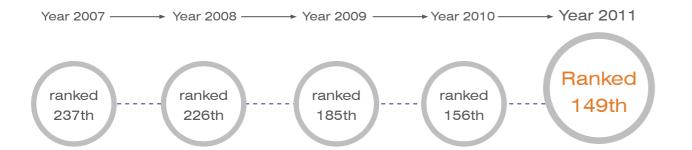
>> ■ enhance cooperation with Hong Kong and Macau >> ■ Facilitate GMS cooperation



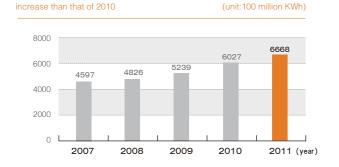
Operation Performance

CSG has been operating steadily in accordance with laws and regulations, lowering cost and increasing returns, continuing to improve operation and management, ensuring and increasing the value of state-owned assets, and striving for value creation for stakeholders. In 2010, confronted with a complicated and volatile economic environment, frequent natural disasters and other negative factors, CSG held on to its mission, continued to improve operation and management, successfully accomplished the 2010 operation performance objectives made by the SASAC (State-owned Assets Supervision and Administration Commission) of the State Council and was awarded level A in the performance evaluation for the fourth consecutive year.

CSG's Ranking in Fortune 500



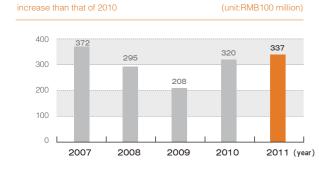
Total electricity sold: 666.8TWh



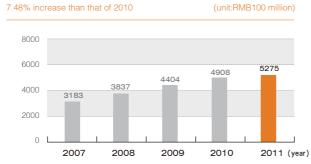
Main business revenue RMB389.4 billion



Total pre-tax profits RMB33.7billion



Total assets RMB527.5 billion



Operating in compliance with law and regulation

CSG complies with market economic rules and operates in strict accordance with laws and regulations. The company reinforces prevention of and addressing legal risks, internal management, practices supervision on important decisions, facilitates zero-corruption and clean company operation and is committed to establishing CSG as the role model of a law binding and ethical and trustworthy company. In 2011, CSG corporate long term rating was super AAA, no major breach of laws nor breach of rules occurred, no tax evasion happened.

■ Legal Risk Management

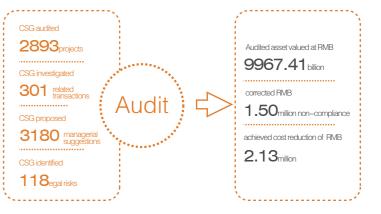
CSG has used legal compliance as an important measure to support the development strategy, improve management and ensure healthy development of the corporation. The company has perfected legal counsel system, legal offices, and made a comprehensive review on legal risks of main business operation to improve legal risks prevention and enhance control on legal risks. 2011 witnessed a significant drop of cases and economic losses.

Actions Taken After In-process Control **Precautions Beforehand** CSG settled 612 lawsuits in year 2011 CSG conducts investigations of possible legal CSG provides legal services for major operation CSG solved all the major legal disputes left over risks, identifies the risks and sets up a risk decisions on a continuous basis CSG examined 142,639 contracts and proposed more from history and recouped 2.507 billion RMB for CSG examines economic contracts, rules Identify than 6,357 major amendment suggestions in 2011; Control and regulations as well as important Analyze CSG examined 2,205 regulations and proposed 2,380 Manage suggestions for revision; participated in 404 important decisions and formulated 1,165 legal opinion letters CSG was fully involved in the implementation of CSG puts forward specific plans to fulfill the various kinds of reform programs Fifth Five-year Legal Popularization Plan enhances the publicity and education of law.

Strengthening Internal Control

CSG actively strengthens internal operation control, raises resiliency against risks, and gives a full play to the role of auditing in safeguarding sound development of enterprises.

- □ CSG taken National Audit Office's rectification of the problems discovered in auditing as an opportunity, CSG establishes a joint-action mechanism and analyzes 53 typical problems from ten aspects in an effort to improve management.
- □ CSG has established a "holistic auditing" system. Supported by Auditing Association, 512 professional auditing personnel from CSG have been selected to participate in on-site auditing.
- □ CSG is dedicated to scientific auditing improvement, and founded CSG Auditing, an internal auditing journal and has expanded the coverage of Audit Information Management System in power supply bureaus at all levels. CSG has held 4 sessions of audit training courses, with more than 300 auditors attendance.



Warnings and Reflections

On May 20th, 2011, National Audit Office notified CSG of its existing problems, for example, CSG failed to pay all employees' income tax in accordance with regulations CSG attached great importance to this problem and rectified the problem immediately by paying back all related fees. CSG takes NAO'S audits as a good opportunity to strengthen internal management, focusing on system development and improving the system and mechanism to attain the solution of the problems

35 A Myriad of Twinkling Lights, Great Rapport of CSG



Supervision of Major Decisions

CSG improves the supervision and inspection methods, puts forward policy making system overseeing important decisions, key appointments and dismissals, important project arrangements and large fund operation. It steps up efforts to promote a transparent operating framework and strengthens the control and supervision of power. Over the year, no cases of violation against the collective decision-making system have been found.

CSG intensified inspection and supervision on key decisions such as transformation of economic development model, energy saving and emission reduction. State Assets Administration Committee Efforts speaks highly of these efforts made by CSG in these aspects.



CSG step up efforts to inspect and CSG has sorted out 30 "private coffers", involving 66.67 million RMB.

CSG strengthened inspection on fixed asset investment, sent specialized inspectors to supervise key projects, and has established a network of inspectors at all levels of CSG. CSG inspected 32 fixed asset investment projects and sent out 174 notifications for rectification.

Anti-corruption and Self-regulation

CSG emphasizes the importance of anti-corruption campaign, promotes the development of a mechanism to punish corrupted officials and fight corruption through education, regulation, supervision, punishment systems as well as publicizing virtues of integrity and self-regulation.

Don't want to be corrupted Developing a healthy mindset

Highlighting zero-corruption education of managerial personnel

CSG held corruption-free management seminars (with

Deepening corruption-free education for all staff members

CSG held Disciplinary Education Month activities on the theme of "Zero corruption and Self Regulation", and organized film watching activities and lectures on

Facilitating the building of a honest and clean system

New achievements have been made in facilitating the building of a clean system

Can't be corrupted Establishing a strict

management mechanism

Setting up an accountability system for anti-corruption management

CSG has issued 12, 387 notices of accountability, thus allocating

Establishing a comprehensive punishment and prevention mechanism

CSG has laid out framework of punishment and prevention, specified anti-corruption core content, namely "Five Mechanisms, Three Guarantees and One Platform", and has incorporated the framework into

Setting up an assessment mechanism and strengthening supervision on officials

CSG has incorporated officials' financial status, such as personal property, income etc. into the analysis. Officials must be under the guidance of the Party. 86 high-level officials have received probation assessment and 149 managerial personnel's performances have been evaluated.

Don't dare to be corrupted

Imposing deterring penalties on corruption

Regulating letters and visits as well as case management

Carefully handling letters and visits, carrying out investigations and research, and supervising the implementation of letters and visits

Punishing any violations of disciplines and regulations in a

63 officials was penalized from the Administration of the Party, and 9 enterprises guilty of bribery were

■ Efficiency Supervision

CGS carries out efficiency supervision in key operational and managerial areas, with the focus on decision making system, ratifications in construction, goods procurement bidding. Over the years, CSG has inspected 919 projects, provided 1,230 suggestions, avoided RMB 14.332 million economic losses and recouped RMB 14.692 million losses, thus, in total saving RMB100.749 million.

■ Cost Reduction and Efficiency Improvement

CSG sets up a centralized funds management system, incorporates comprehensive budget analysis, promotes centralized accounting, alleviates electricity price conflict, increases risk prevention, and realizes the goal of cost reduction.

Reduce non-urgent cost projects

Unit power supply cost reduced RMB1.7/KKWh compared to budget

Strenathen risk

management on electricity charge

99.92% electricity charge have been collected, and default payment decreased12.3% compared to that of 2010

Pracrice centralized procurement

61% materials were centrally procured, achieving RMB 1.7 billion in level one material procurement through centralized tendering and bidding process, representing RMB 460 million saving compared to

Cost Reduction and Efficiency Improvement ?

Speed up asset centralized management, adjust internal asset surplus and deficit to channel in financing

RMB1.3 billion capital cost was saved.

Practice strigent project costing management

Atcual project settlement achieved 12.5% decrease than budget, and RMB1.33 billion.

Make an inventory of warehouses

Inventory reduced 40% compared to that of 2010, and revived idle materials valued at RMB 1.47 billion and recovered RMB 350 million from recycled materials.

Promoting Power Market Development

CSG has been maintaining market order, expanding the power market and promoting sustained, healthy and harmonious development of the power market.

- □ CSG coordinates the relationship with the government, power plants and customers, ensured the interests of power plants and customers while pursuing its own profits, and wins the understanding and support from them.
- CSG played a coordination role in the signing of the West-to-East Power Transmission Agreement for the 12th Five-Year Plan and developed a mature transaction mechanism for the power in western China. Under the coal and hydro power shortage, CSG achieved west-to-east power transmission of 96.9TWh.





■ Serving the Development of the Five Provinces and Region

CSG improves the regional power exchange cooperation model in which governments play the leading role and enterprises play supporting role on the basis of west-to-east power transmission platform. The company coordinates power supply to the eastern China and western China, and has made positive contribution to stable and rapid economic and social development in the five provinces and region. In 2011, CSG strengthened power supply adjustment among the five provinces and regions, and reduced 11.5TWh power supply from Guizhou and 2.8TWh power supply from Yunnan. In 2011, Huizhou and Yunnan supplied 89TWh power to Guangdong and 7.4TWh to Guangxi.

Facilitate Guangdong's industry transformation and upgrading

Guangdong Power Grid constantly reinforces power grid construction to support Guangdong's effort in industry transformation and moving up the industry chain. In 2011, CSG invested RMB38.75 billion in fixed asset investment, and sold 404.6TWh electricity, and basically guaranteed orderly power supply. CSG's investment created 3,508 job opportunities, and has facilitated Guangdong's industry transformation and Happy Guangdong Mission.

Facilitate Northern Bay Economic Zone development

Taking Northern Bay industry cluster into consideration, Guangxi Power Grid Co., Ltd made plans and construction of power grids in 6 cities of the Northern Bay, reinforced power grid investment, and improved power supply network at different voltages. Guangxi Power Grid Co., Ltd established an EHV power supply network consisting of 8 stations, 6 power plants, 6 vertical, and 6 horizontal networks with the capacity of 10 MW. The efforts have effectively improved power grid's power supply capacity and reliability and have provided robust driving force for Northern Bay Economic Zone. In 2011, Guangxi Power Grid was awarded "Collective Prize in Making Excellent Contribution to Serving Western China Development".

Facilitate Yunnan's development as a bridgehead

Yunnan Power Grid gives full play to Yunnan's advantage in natural resources and geographic location and integrates power grid development transformation with Yunnan's development. The grid set up 7taskforces and implemented research on electricity industry development, power grid construction, power price policy, Going Global strategy, completed power demand and supply analysis in the 12th Five-Year-Plan period, adjusted local power grid planning and gave full support to priority areas including Ruili's development.

Support Guizhou's further development

In 2011, Guizhou Power Grid invested RMB 15.38 billion in fixed assets, transmitted 27.2TWh power in West-to-East Power Transmission Project, and helped Guizhou to achieve 15% GDP growth, and 27.5% industry output growth. Power sector continued to play the leading role in the province as backbone industry in 2011.

Facilitate Hainan's development as an International Tourism Island

Hainan Power Grid promoted construction and upgrading of urban and rural power grid, achieved the breakthrough of upgrading 220kV main network from a single-loop one to a double-loop one. In 2011, Hainan Power Grid invested RMB 2.94billion on fixed assets, sold 13.795TWh electricity and provided reliable power supply to Hainan's development as an international tourism island.











■ Enhance Cooperation with Hong Kong and Macao

CSG has implemented electricity trading with Hong Kong and Macau, and has expanded cooperation scope with Hong Kong Special Administrative Region and Macau Special Administrative Region, with an aim to complement each other and realize mutual development..

- ☐ The first Guangdong-Hong Kong-Macau Power Industry Summit held in Macau in 2011. The Memorandum of Understanding on Establishing a High-level Communication and Liaison Mechanism between CSG, CLP and CEM" was signed by the three power companies. CSG made positive contribution to Hong Kong's and Macau's economic prosperity.
- □ CSG worked with CLP in a plan to supply power to Hong Kong from nuclear power plants, and launched a five-year-plan to develop Shenzhen Power Supply Co.,Ltd as a first rate one and used CLP as a benchmark.
- □ In 2011, CSG supplied 3.076TWh, representing 70% of Macau's total electricity consumption . Since CSG started power supply to Macau in 1984, CSG's power supply to Macau increased more than 65 times.
- □ CSG worked closely with CEM on exchanges and cooperation at regular intervals, and facilitiate construction of the 2nd 220kV power transmission line.



▲ The first Guangdong-Hong Kong-Macau Power Industry Summit



A Zhao Jianguo, CSG board chairman met Fernando Chui, Chief Executive of Macau SAR

CSG has proudly kept 100% power supply reliability in its 28 years power supply to Macau

Zhuhai Power Supply Bureau started power supply to Macau in 1980s and today, CSG has supplied power to Macau for 28 years. In the past 28 years. CSG has constantly enhanced project construction and equipment maintenance and improved its power supply capability. Zhuhai Power Supply Bureau set up a 4-person patrol team to patrol the 6 km power cable connecting Zhuhai to Macau on 7/24 basis and does fiber on-line tempreture check at every five minutes interval. At 9AM and 8PM every day, power dispatching team in Zhuhai and Macau will make telephone calls to update power. supply monitoring progress to each party. Thuhai Power Supply Bureau has always set aside power capapcity for Macau and has achieved 100% reliability in the past 3 decades.

■ Boost GMS (Greater Mekong Sub-region) Cooperation

Under the guiding principle of "equality and mutual benefits", CSG plays an active role as the nation's executive agent in the GMS Power Cooperation Framework.

- □ CSG communicates and cooperates with GMS countries on power grid project construction, hydro power development, power trading, and power grid operation model.CSG has reached consenus with GMS member countries in terms of enhancing cooperation, establish high-level visits and long-term cooperation framework agreements.
- □ CSG participated in the drafting processes of a number of key documents, including: A New Ten Year (2012-2022) Strategic Framework for CMS and Report on Chinese's Cooperation with GMS Countries.
- □ CSG organized Consultation Conference on GMS Power Project Development and advocated to establish an internal coordination mechanism to enable Chinese enterprises' participation in GMS power supply cooperation, with an aim to deliver necessary services for Chinese enterprises' investment and project development in GMS power projects.

CSG imported 2.423 TWh electricity from Myanmar Myanmar representing 40.9% increase than that of 2010.

Vietnam

CSG sold 4.473 TWh electricity to Vietnam, representing 20.66% decrease compared to that of 2010 Advance feasibility study on 500 kV power connection

in an all-round manner

Laos

CSG reached consensus with Thailand and re-started 500kV power connection project

CSG signed a MOU on Related issues on Power Projects in Northern Laos.

CSG supplied 0.117TWh electricity to Laos and guaranteed power supply to construction of China-Laos Electrified Railway Project and the country's social and economic development.

Conducted research on Scientific Plan and Franchise Model of Lao's National Grid

Completed Phongsaly village electrification project, Laos.



Green and Environment Protection

CSG is committed to a green power grid and facilitates community-wide energy saving and emission reduction. CSG's mission is to facilitate a coordinated and sustainable development on corporate growth, social development and environment protection.

■ Energy saving and emission reduction at Power supply side >> ■ Energy saving and emission reduction at power grid side

■ Energy saving and emission reduction at customer side >> ■ Green development 2020

The 2011 West-to-East Power Transmission:

Helped Customers save

55.0_{TWh} 1.975_{TWh electricity} 2.27_{million tons}

Environment friendly power dispatching helped a saving of 2.27 million tons of standard coal.

>> Energy saving and emission reduction performances



the globe, climate change, environmental pollution and energy shortage are exacerbating. Worldwide extreme weather events, such as heat, draught, flood and severe cold, occur more frequently. Desertification, deforestation, rising sea level, land and air pollution not only pose threats to human health, but also causes a series of social problems. For developing countries, environmental and energy issues become more urgent while maintaining social and economic development, with the transferring of high energy consumption and polluting industries to developing countries. Coping with environmental pollution and climate change has become a common issue for all nations in the world.

The size of the world's population has continued to increase—from 5 billion in 1987 to 7 billion in 2011, which only takes 24 years. According to United Nation forecast, the world's population will be over 9 billion in 2050. With the increase of human activities, global sustainable development will become a very prominent issue.







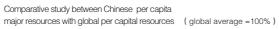


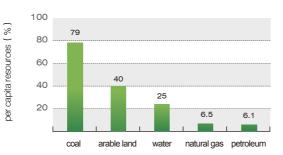
is fully committed to energy saving and environmental protection, embarking on a green, low-carbon and sustainable growth path. It has set improving natural environment and coping with climate change as a basic binding indicator of social-economic development and incorporates it into middle and long term economic and social development. In 2011, Chinese government pledged to: lower carbon dioxide emission gross domestic product (GDP) per unit by 17% below 2010 levels, increase the share of non-fossil fuels in primary energy consumption to around 11.4%, and increase forest stock volume by 600 million cubic meters and forest coverage by 21.66%. The above targets have been listed in China's 12th Five Year Plan.

China remains the world's largest developing country and its resources and energies per capita are lower than the world's average.

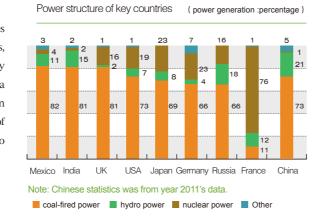
Among the 15 top GDP per capita countries in the world, fossil fuel makes up more than 60% of their electricity generation in twelve countries, which is closely related to their energy structure or international energy supply. In 2010, coal consumption for electricity generation in China accounts for 54.24% of the total consumption. In the next few years when coal is still the largest source of power generation, various phases of electricity generation and consumption will face difficult challenges to lower energy consumption and reduce emission of pollutants.

Resource: "Research on the Impact of New Energy Sources Development and Comparative Analysis of their Carbon Effects" (Research findings from CSG)





Source: The Ministry of Land and Resources, People's Republic of China

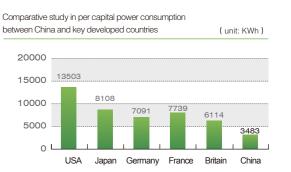


power sector responded positively to the state's call on energy saving and emission reduction, and met the target set during the 11th Five-Year-Plan period.

Based on SERC's Update on Energy Saving and Emission Reduction achieved by Power Sector in year 2010 and the 11th Five-Year-Plan Period, a total `capacity of 76.83GW coal-fired power plants was shut down during the 11th Five-Year-Plan period, exceeded 26.83 GW capacity reduction than the quota set by the central government .Net coal consumption rate of Chinese power sector ranked top in the world, in 2010, average net coal consumption rate reduced 37 gram/KWh, service power rate reduced by 0.44% and comprehensive line loss rate reduced by 0.68% compared to that of 2005.

Limited by Chinese energy resources, Coal-fired power generation contributes 70% of energy sources in China. In 2010, coal-fired power plants consumed 54.24% of total coal production in China, and discharged 50% of Carbon dioxide, 42.5% of sulfur dioxide in China. In every stage of its production and consumption, power sector has a long way to go in energy consumption reduction and pollutants reduction.

China is at the industrialization and urbanization process, and has rigid power demands because of it unbalanced regional development. The country is confronted with formidable challenges in economic development, poverty elimination and livelihood improvement. Per capital power consumption in five provinces/regions in Southern China equals to 22% of that of US, and 35% of that of Japan in 2008. The new round of Western China Development, combined with a number of significant government strategies including Pearl River Delta Development Guide, Northern Bay Economic Ring Development Guide will create sustained power demands in CSG's service area in the coming years.



Source: Data on developed countries is from 2008 IEA data; Data on China is from 2011 China Electricity Council data.

always subordinates its own interests to the general interests of the country. CSG abides by the principle of "Serving government, serving communities and serving clients" and gives full play to its role in optimized resources distribution, and put national policies in energy saving, emission reduction, put low carbon economic development in place, facilitates power grid's transformation to a smarter, highly efficient, more reliable and greener one. CSG has made specific energy saving and emission reduction strategies to shoulder its own obligations in power source side and clients side, and has played a guiding role in helping upstream power plants to adjust energy mix, and has facilitated its downstream enterprises in its energy consumption model. CSG works closely with its upstream and downstream enterprises to create a green industry chain, low carbon society for a green life.

CSG' Green Action: CSG's Green Action is based on the country's 12th Five-Year-Plan and the country's 2020 target in energy saving and emission reduction. CSG is always at the forefront of energy saving and emission reduction, and makes every effort to transform itself to a "Smart, efficient, reliable and green" power grid, to minimize impact on resources and environment, and is dedicated to delivering robust service and guarantee to sustainable development.

Based on CSG's forecast, energy saving and emission reduction potentials in its power production and consumption in the five provinces and regions are:



Serve the government _____.

CSG put national policies in energy saving, emission reduction, low carbon economic development in place and advices the central government in related policy making process and assists the government in facilitating energy structure adjustment and economic transformation.

Serve power sources

CSG provides a range of power source connections and complementary peak-load regulation services, energy-saving power generation dispatching services to promote clean energy development and efficient, clean production of conventional energy sources

Serve clients

CSG perfects energy saving information platform and provides a wide range of energy saving services to promote smarter and greener energy consumption.

43 A Myriad of Twinkling Lights, Great Rapport of CSG

Green and Environment Protection 44

CSG plays a platform role as an optimized energy sources distributor and is committed to interests of energy and power plan in the five provinces and regions. In its power grid plan and construction, CSG takes power source layout and structure adjustment into full consideration, and attaches priority to serving government and power plants and facilitates energy saving and emission reduction at power source side.

Resources at the five provinces and regions

0.147TW hydro power resources to be Hvdro developed, accounting for 27% of total hydro power power sources in China.

.....



90 billion tons of accumulative coal reserve, 12.3 billion tons of coal reserve to be explored, accounting for 7.5% of total coal reserve in China.



Installed nuclear power capacity is 6.12MW, accounting for 48.6% of total installed nuclear power power capacity in China



9.5MW off-shore wind power to be developed, Wind accounting for 2.1% of the nation's total, 113 MW on-shore wind power to be developed, accounting for power 38% of the nation's total.



27MW solar power to be developed, accounting for Solar 1.2 % of the nation's total power



at the

5MW biomass energy to be developed, accounting for 12.5% of the nation's total, 2.06 MW geothermal power alternative to be developed, accounting for 35.4% of the nation's total. 1.04MW ocean energy to be developed. accounting for 4.8% of the nation's total

Our attitude

Water resource is renewable energy , 37% of water resources have been developed, and there is a great potential to develop it. CSG support energy structure optimization, and vigorously develop hydro power.

Coal plays a main role in China's power development. It is very difficult to change its coal-based energy structure before year 2020. CSG supports the central government in clean and efficient coal-fired power development and assists the government in shutting down inefficient coal-fired power units.

CSG supports government's nuclear power development and energy structure optimization under the overarching principle of absolute safety .

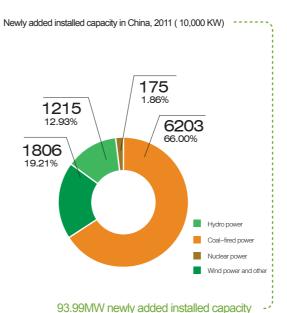
CSG speeds up its efforts in low carbon economic development in its service area, and facilitates energy saving, emission reduction, protects regional environment, improves power grid's capacity in interconnection with new energy including wind power and solar energy and distributed energy.

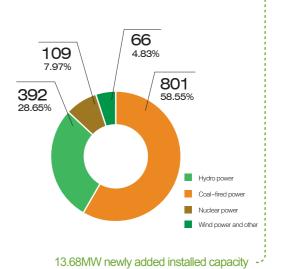
Source: Comparative Analysis on the Impact of New Energy Development on China's Energy Structure and Its Low Carbon Benefits (Research findings of

Based on CSG's research, the most significant approach in realizing low carbon economic development is to facilitate energy saving and emission reduction at the whole community. Measures to be taken include: industry structure adjustment, policy support, science and technology innovation, and significant reduction of unit production capacity power consumption during industrialization stage. CSG's research indicates that, in sequence of low carbon-friendly energy, high efficient and clean use of coal ranks top, followed by hydro power, nuclear power, and new energy (including wind power, biomass, and solar power).

■ Facilitate structure optimization of demand-side installed units

CSG has taken effective measures to implement the central government policy in clean energy. The company encourages power plants to expand clean energy generation power mix, and is dedicated to carbon dioxide emission reduction. Under CSG's service area, installed capacity of clean energy is 45.2%, much better than that of national average 27.62%. Among them, installed capacity of hydro power is 38.3%, higher than that of national average 21.35%.





Newly added installed capacity in CSG's service area (10,000KW) --

West-to-East Hydropower Transmission

CSG gives full play to hydro power, and has facilitated cascade comprehensive hydro power development. The company conducted seasonal hydro power consumption research on southwest China and has facilitated west-to-east power transmission construction and capacity development.

- □ CSG's hydro power generation is 157.8KW, equivalent to 48.13 million tons of standard coal saving, 128.02 million tons of carbon dioxide emission reduction and 920,000 tons of sulfur dioxide emission reduction.
- ☐ The West-to-East Hydropower Transmission amounted to 96.9TWh, in which, 55 TWh was hydro power, equivalent to 16.78 million tons of standard coal saving, 44.64 million tons of carbon dioxide emission reduction and 3.2 million tons of sulfur dioxide emission reduction.

Hydro power generation in CSG's service area (Unit: 100 Million KWh)



Note: CSG's hydro power generation was adversely effected by insufficient rainfall in 2011.

45 A Myriad of Twinkling Lights, Great Rapport of CSG

CSG's research project)

Clean coal-fired power development

CSG supports government' policy in differentiated electricity prices, and facilitates power plants in shutting down inefficient coal-fired power generation units and switching to high parameter and highly efficient power generation equipments.

- □ In 2011, the average power consumption rates of coal-fired power generation units was 305 grams/KWh, representing 4grams/KWh reduction compared to that of 2010, fossil fuel consumption for unit power generation and power sale is 211 grams/KWh standard coal, 42 grams/KWh lower than the national average.
- Put policy on supporting efficient coal-fired power generation units in place, by the end of 2011, CSG has assisted the governments in shutting down inefficient generation units with the total capacity of 17.24 MW.
- □ CSG complies with electricity tariff for desulfurized power generation units and facilitate desulfurization of combustion generators in its service areas and reduces sulfur dioxide emission, 235 real-time desulfurization monitoring units have been installed grid wide, achieving 100% access rate. Average operation rate of desulfurization devices was 98.7%, with 95.1% average desulfurization rate and a total desulfurization of 4.05 million tons.

In total, inefficient generation units with the total capacity of 17.24MW has been shut

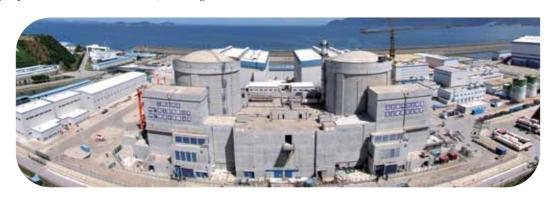


Support nuclear power development

Nuclear power is a highly sensitive industry. Chinese government acts in a more cautious manner in nuclear power development after the Fukushima accident. The government is speeding up plans on nuclear safety rules and adjustment plans on nuclear power mid-to-long term development plan and is dedicated to improving the capacity in confronting extreme natural disasters and emergency response capacity to ensure safe operation of nuclear power

Chinese government's policy on nuclear power is to put absolute safety at top priority, and with priority areas on design and construction of the third generation of nuclear power stations, CSG develops nuclear power in its service in accordance with the central government's plan and development. By the end of 2011, the installed nuclear power capacity was 6.12MW in CSG's service area, accounting for 48.6% of the nation's total.

The installed nuclear power capacity was 6.12MW



Energy saving-based power generation dispatching

AS a central enterprise, CSG plays a leading role in energy saving and emission reduction. CSG takes the initiative to launch energy saving-based power generation dispatching in China and has laid a solid foundation for green development. Year 2011 representing the first year in rolling out energy saving-based power generation dispatching grid-wide, under the backdrop of a severe power shortage, CSG established a sound mechanism on energy saving-based power generation dispatching.

A sound organization mechanism

Provincial/regional taskforce on energy saving-based power generation dispatching, established by provincial and

Taskforce on energy saving-based power generation dispatching established by power plants

3 mechanisms on energy saving-based power generation dispatching

Government: Organized and implemented energy saving-based power generation dispatching within its jurisdiction areas; compiled management regulations on power generation dispatching

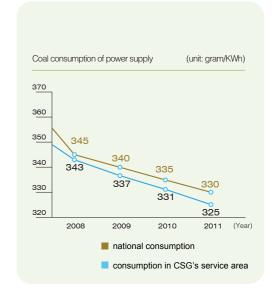
CSG: coordinated specific work in energy saving-based power generation dispatching in its service areas and made technical codes on energy saving-based power generation dispatching.

Power plants: supported the governments and power distributors in energy saving-based power generation dispatching ______

A state-of-art technical support scheme

Established an arrangement system on power generation plan, on-line monitoring system of flue gas desulfurization, on-line monitoring system of thermal load of CHP units, and information publishing system.

- CSG and its subsidiaries in the five provinces/regions have established taskforces on energy saving-based power generation dispatching. Power generation dispatching division has been set up in the CSG General Dispatching Center for a reinforced coordination and a better service.
- □ CSG worked with government departments in compiling schedules of power generators, combination solution, and economic compensation plans, organized dispatching offices at different levels in arranging power generations, carried out quantitative analysis of equivalent load rate to enhance assessment on energy-saving based power generation dispatching.
- □ CSG established technical support system to publish technical support system on on-line monitoring of coal consumption, on-line monitoring of desulfurization and small hydro power dispatching information.
- □ CSG timely disclosed information on energy-saving based power generation dispatching by official website, news conference, and plants-grid joint meetings.
- □ CSG timely disclosed information on energy-saving based power generation dispatching by official website, news conference, and plants-grid joint meetings.
- □ CSG practice energy-saving based power generation dispatching; the company achieved a total reduction of 9.27 million tons of standard coal, equivalent to 24.04 million tons of carbon dioxide emission reduction.



47 A Myriad of Twinkling Lights, Great Rapport of CSG

Green and Environment Protection 48



Support New Energy Development

CSG has gradually improved energy mix, and comprehensive energy development, has increased the ratio of renewable energy and new energy in installed units. CSG has reinforced construction of coordinated projects on clean energy, and has enhanced the grid capacity to receive new energy (wind energy, biomass, solar energy, for instance) and renewable energy.

Support New Energy Development

Solar energy power generation

- Ensure national energy safety ensure future strategic energy, green
- Develop solar power generation by taking local circumstances into consideration
- Develop office building PV projects at Guigang city, Guangxi Autonomous
- Added 20.000Kw solar power generation

Wind Power

- Green and renewable energy
- Develop wind power generation by taking local circumstances into consideration
- Develop Wind Power Farm at Guishan,
- Newly added 724,700KWh installed wind power capacity, increasing 59.55% than that of the previous

Biomass power generation

- Renewable energy industry encouraged and supported by the Chinese government
 - ower generation
- power generation project-Guangdong Yuedian Biomass Power Generation Project, with the total installed capacity of 2X 50,000KWh

- Reasonable deployment of biomass
- Support interconnection power generation of the biggest biomass

The first "Green Roof" which generates power in CSG



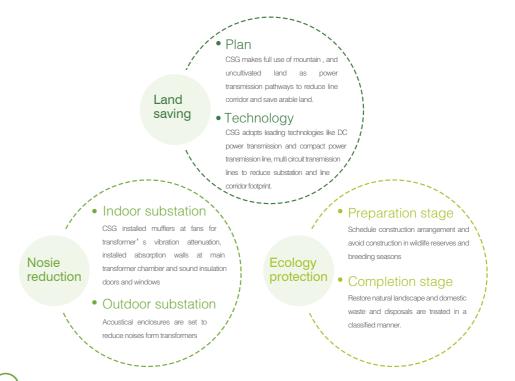
On 28th, Sept, 2011, the phase one PV power generation project officially started operation. This is the first pilot project of CSG and is built on the rooftop of Guigang Power Supply Office Building. The project supplies power to office building lighting and air conditioning. With a total area of 300 square meters, the project is composed of 90 PV panels, is pollution-free, noise-free, and does not consume fossil fuel and does not occupy land resources. The total size of the project will be 1 million KWh, the installed capacity of phase one is 250,000KW, with designed operation capacity of 25 years, and annual power generation capacity of 100,000KWH. The estimated total power generation capacity will amount to 2.5 million KWh, and will effectively reduce coal and carbon dioxide emission.

■ Grid-side energy saving and emission reduction

Construction of a green power grid

CSG incorporates community requirements and environment requirements in power grid plan and construction, facilitates application of new environment-friendly technology, minimizes resources use, and minimize impacts on community and environment, protects bio-diversity for a harmonious co-existence of power grid construction and operation with the mother nature and communities.

- □ CSG introduced environment protection permit in power grid project. 100% projects have passed environment impact assessment, no breach on environment protection occurred in 2011.
- □ CSG protects arable land and saves land use by optimization of power transmission lines and innovative power transmission technology.
- □ CSG adopts tailor-made solutions to reduce noises from outdoor substations and indoor substations.



CSG's first 3C green demonstration projects starts construction

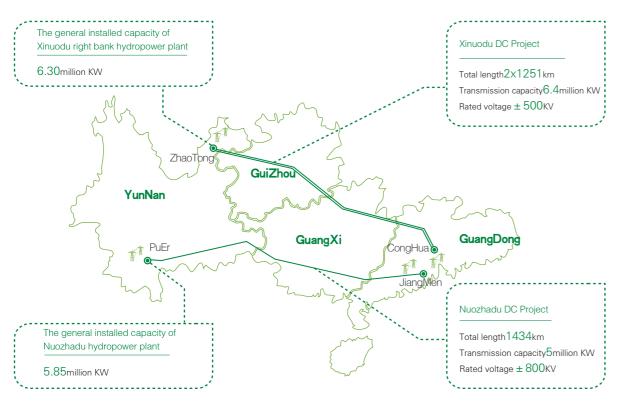
On 28th, Nov, 2011, CSG's first 3C Green Demonstration Project -110kV Jianfeng Substation officially started construction in Guangzhou. The substation is called 3C Green substation because of its state-of-art Computer technology, Communication Technology and Control technology.

- The substation used green construction materials based on fly ash and slags to replace materials from red brick, concrete, and cement.
- . Substation's rooftops are covered by green vegetations, all electronic appliances are housed in the power distribution building. The building looks the same with ordinary one
- All equipments are low noise ones, main noise sources are enclosed and treated, ventilation spaces at the external walls are reduced to minimize noise leakage. Noise measured at the substation walls is 40 decibels, significantly lower than the national standards-60 decibels.



■ Implement key projects to boost "West-to-East" power transmission

On Dec 2, 2011, Xinuodu Project and Nuozhadu Project, national key projects during the "12th Five-year Plan", began their construction and their operation was due in 2014. The Projects were an important action of CSG to implement the national strategy of "transmitting the electricity from the west to the east of China". They were also a strategic act to upgrade the power transmission technology of China.



Roadmap of Xinuodu Project and Nuozhadu Project

The Projects will increase the capacity of west to east power transmission by 11.40 million KW.

They will account for 66% of the increased capacity of Transmission capacity CGS to transmit the electricity from the west to the east during the "12th Five-year Plan"

Upon operation, their annual capacity will be equivalent to 16.68 million tons of standard coal saving.

They will reduce CO₂ emission by 44.38 million tons.

100% technologies of Xinuodu DC Project is developed and owned by CSG.

Background information

Xinuodu DC Project and Nuozhadu DC Project

They refer to the $\pm 800~\text{kv}$ DC transmission project from Pu'er, Yunnan Province to Jiangmen, Guangdong Province and dual loop ±500 kv DC transmission project from Xinuodu Right Bank Hydropower Station to Guangdong Province respectively, with a total investment of 33 billion Yuan. The Projects make use of the hydropower resources in Yunnan Province to generate economic benefits. They will satisfy the increasing power demand of eastern Provinces in China and reduce the workload of transporting coal from the north to the south of China.

■ Energy efficient and environment-friendly operation

Lower Line-loss

CSG has adopted unified standard of line-loss theoretical calculation and carried out the calculation for the main and supporting grid. With line-loss management in four divisions, it has continuously reduced the power loss in transmission and transformation.

- ☐ In 2011, the grid-wide line-loss rate was 5.35 %, 0.93% lower than previous year.
- ☐ The line-loss rate improvement saved 0.66 TWh power saving. Compared to that of 2010, our power saving in 2011 was equivalent to 2 million tons of standard coal, and reduction of 5.31 million tons of CO2.
- ☐ Since 2006 (the starting year of the 11th Five-year Plan), it has reduced line-loss through better management, which contributed to 2.67 TWh power saving, equivalent to 8.4 million tons of standard coal and reduction of 21.91 million tons of CO2.



CSG follows the roadmap of "control, reduction and recycling" and applies the circular economy concept to the whole process of power grid operation. It spreads and adopts new and environment friendly technologies to reduce the waste.

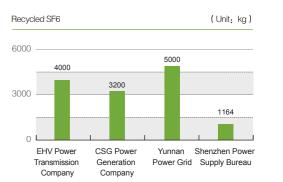
- ☐ Abiding by the national and local laws and regulations on environment, it keeps the waste level within the national standard and prevents the waste from polluting the soil and underground water.
- ☐ It filters the impurities in the waste oil produced by transformers to turn it into insulating oil. In 2011, the recycling rate of the waste oil in transformers was nearly 100%.
- ☐ All the departments and corporations under the umbrella of CSG have paid great attention to the recycling of SF6. CSG implemented the SF6 CDM $\,$ project to improve the recycling of SF6, which was 100% in 2011.

Note: SF6 is a greenhouse gas. It is stable and can exist in the atmosphere for 3,200 years without decomposition. Its greenhouse effect is 24,900 times that of





▲ The workers were collecting the used wires.



CO₂ of the same amount.

Shenzhen Power Supply Co.,Ltd recycle and reuse waste in a highly efficient manner

Shenzhen Power Supply Co., Ltd recycles and reuses waste in a highly efficient manner. In 2011, a total 399 tons of tower materials, ground wires, and cable were recycled, 325 tons of waste materials were reused, representing 81.45% recycling rate. Solid wastes that cannot be recycled are sold to certified disposal treatment companies.





.....

Customer Side Energy

CSG endeavors to transform from a pure power supplier to a comprehensive energy supply service provider by taking "Green Action". It provides energy saving service package to customers through platform like Comprehensive Energy Corp of CSG. By practicing contractual energy management, it is able to maximize energy use efficiency, create value for customers and engage them in low-carbon growth.

■ Put energy saving policy at customers-side in place ■ Energy management contract

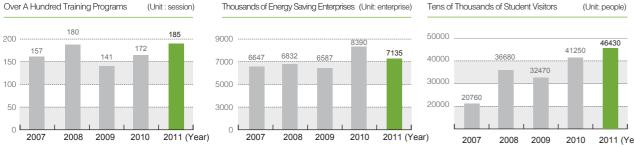
- □ CSG has introduced differentiated power price policy and closed down or relocated high power-consuming businesses as was required by the government. It carried out "Power Consumption Management Method" to help customers to enhance their power consumption behavior. It helped the government to formulate and improve the policy on tiered power pricing for households and time-of-use pricing, coupled with energy-saving elastic pricing mechanism.
- It has improved hydro-power pricing mechanism, self-supplied power plant charging policy and renewable energy pricing policy.

Guide customers to save energy and reduce emission

- ☐ It carried out energy efficiency diagnosis for 3,000 corporate customers whose total power consumption was over 2.5 billion KWh. It implemented contractual energy management project for 26 customers, saving 22.68 million KWh power or 49.2% of power consumption asving.
- ☐ It has conducted research into the business model and relevant policy for LED lighting projects in coordination with the Science and Technology Department of Guangdong Provincial Government to spread and apply LED and other green lighting technologies.
- ☐ It has signed cooperation agreement with Guangdong Yuedian Group to develop energy efficiency management system.

In 2011, the Comprehensive Energy Corp of CSG established energy efficiency management system for Shajiao C and sixteen other power plants. It implemented gas power generation and coal-bed gas utilization project in Dashan coal mine of Qujing, Yunnan Province, which has annual power generation capacity of 9 million KWH, equivalent to 2745 tons of standard coal saving.





Case study: Midea- Saved 50% of electricity



In 2011, CSG Energy practiced energy conservation for Midea Ricecooker Company (MRC)on its injection molding machines. The service was delivered through EMC model and no upfront investment was needed from MRC and helped the company to achieve 3.1 MWh electricity saving, or RMB2.48 million electricity bills, representing 55% of electricity saving. CSG worked closely with MRC's parent company-Midea and promoted energy saving cookers in Guangdong and Yunnan province, and implemented 8 projects. In total, RMB 4.8 million energy costs was saved per annum, 1,635 tons of standard coal were saved per annum, and 4,349 tons

■ Support electric vehicle (EV)

CSG actively supports low carbon economic development and works with industry on low carbon industry research and development, and has made due contribution to a resource-saving and environment -friendly society. CSG explores new development model on EV industry, and promotes a national standard on EV technical standard and operation standard. CSG has established smart battery-change service network for EV and a comprehensive service scheme to support EV industrialization. CSG has specifically announced its support for battery-change model by making full use of existing power distribution network and facilities.

■ Disseminate energy-saving philosophy

The general public understands and support is key to a low carbon society. CSG makes full use of media, network, and energy-saving products display center, business halls to disseminate energy saving knowledge to enterprises' representatives, citizens and students. In 2011, CSG established 86 energy saving demonstration centers and received 46,430 high school and primary school students.



CSG's publicity campaign targeting at enterprises

Guangdong Power Grid Co.,Ltd and CSG Energy co-organized the first Energy Saving and Emission platform on energy saving, 104 enterprises in Guangdong signed Green Declaration in the forum to express their commitment to low carbon develonment



CSG 's publicity events targeting at citizens

Guilin Power Supply Bureau organized events with the theme of "Participate in energy saving



targeting at students

Guangzhou Power Supply Co.,Ltd worked with Zhixi High School to establish Power Science and Technology Education Center for Teenagers. Volunteer teachers give lectures at the center and disseminate power knowledge and low carbon life philosophy to students at regular intervals. The center is dedicated to educating the next generation as " Pioneers in power saving and angels in environment protection".

Support EV industry development



The Experience Center on Automatic Battery-Changing for EV in Zhujiang New Town, Guangzhou is the first one equipped with automatic battery change system in CSG's service areas The center is fully automated in battery change . Batteries can be

safely unloaded and be replaced with fully charged batteries. The whole process takes no more than one minute.

The center is one of the important facilities in Guangzhou's new energy vehicle demonstration and promotion . The center is conducive to EV knowledge dissemination and EV industry development in the five provinces and regions.

Background knowledge

Wanna to be environment -friendly buddy? Act now!

clients, informing them about power consumption and payment due time. E-bills are convenient and fast. Based on CSG's forecast, every 800 clients' choice of E-bills will achieve 1 cubic meter of wood consumption per annum. Clients can apply for E-bills by logging in on-line business service or dialing CSG Customer hotline 95598

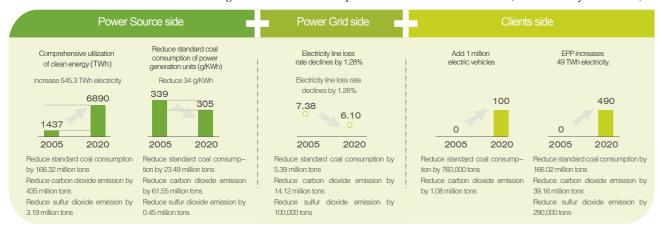
53 A Myriad of Twinkling Lights, Great Rapport of CSG

Green and Environment Protection 54

Green development reinforces the scientific development approach advanced by the Chinese leadership, which translate CSG commitment in CSR. Green development is the expection of and requirements on central enterprise.

In May 20th, 2011, CSG issued a "Report on Green Development in GSG", which put forward the goal of "reducing carbon dioxide emission GDP per capita by 40% to 45% lower than the level of 2005", partnering with companies and organizations to make joint efforts to promote green development and build green civilization.

It is estimated that in 2020 the below goals can be realized in upstream and lowstream industries (based on the year of 2005).



Golden Bee 2020 Low-carbon Development Initiative

"Future Enterprise: China GoldenBee 2020 CSR Initiative" was jointly launched by Golden Bee CSR Council and CSG, member of the "Low Carbon and Energy Efficiency" Committee, in the sixth China Corporate Social Responsibilities (CSR) International Symposium in June, 2011 in an effort to encourage more Chinese enterprises to participate in responsible actions to expand the influence of the initiative and fulfill sustainable development in the corporate and social level.

- □ 1 To develop optimal allocation of resources, including implementing national policy on energy and emission reduction and advancing the project of transmitting electricity from western to eastern region.
- □ 2 To improve the quality of green services, which means continuously carrying out "Hundred, Thousand, Ten Thousand" project, deepening energy-saving services, and promoting intelligent and green change in the ways of using energy.
- □ 3 To realize green production in enterprises, including reducing power transmission losses, improving equipment utilization, offering various types of power access services and supporting peaking services.
- □ 4 To jointly build a low-carbon industry, which means carrying out research on critical technology and industrialization in related fields, and making greater efforts to support the development of low-carbon industries?



Background knowledge

Golden Bee 2020 Initiative

Golden Bee 2020 Initiative, initiated by "WTO Tribune" as well as well-known enterprises at home and abroad, such as CSG, BASF, Intel, NEC, is a national fellowship organization. It aims to strengthen the action of Chinese enterprises in the field of social responsibilities (such as low carbon, supply chain) through building responsible competitiveness and improving the action by providing a platform for innovation and exchange.



Implementation of Green Office

CSG steps up efforts to promote green awareness, improves the green office management, and advocates the internalization of green awareness as well as urging staff members to take the initiative to save water, electricity and office supplies.



Revise Office Energy Conservation Guidelines; control use, management and supervision of energy



Encourage staff to use OA system to transfer documents; use both sides of paper for printing



Promote the use of water-saving devices; recycle rainwater, regenerated water for lawn and plants



Purchase office appliances based on demand; regulate the selection, procurement and requisition of office products



Maintain air-conditioned room temperature at no lower than 26°Cin summers, and no higher than 20°Cin



Enhance the management of electrical appliances; encourage the use of energy-saving lights.



Tightly control the purchase of high-emission cars; evaluate fuel consumption of vehicles



CSG headquarter held 58 video conferences, which take up 38% of the total amount of conferences held

■ Energy Efficiency Performance

Energy efficiency performance of upstream and downstream industries of power grid in 2011

Item	Power (100 million KWH)	Standard Coal (10,000 tons)	CO2 (10,000 tons)	SO2 (10,000 tons)
Increased power generation from non-fossil energy	183	558	1485	10.7
Replacing small thermal power generators with large ones	_	49	131	1.0
Power generation dispatching	_	227	604	4.4
Reduced line-loss	66	200	531	3.8
Energy saving at customers side	19.75	64	169	1.2
Total	_	1098	2920	21.1

Note:Year 2010 was used as the baseline year.

Energy efficiency performance of upstream and downstream industries of power grid since 2006 (the starting year of the 11th Five-year Plan)

Item	Power (100 million KWH)	Standard Coal (10,000 tons)	CO2 (10,000 tons)	SO2 (10,000 tons)
Increased power generation from non–fossil energy	3153	9958	26185	191
Replacing small thermal power generators with large ones	_	1124	2931	22
Power generation dispatching	_	927	2404	18
Reduced line-loss	267	840	2191	16
Energy saving at customers side	66	224	569	4
Total	_	13073	34280	251

Note: the performances in the year 2006–2010 was based on the comparison with 2005 and the performance after 2010 on the comparison with 2010.









Harmonious Society

CSG is dedicated to universal power service and coordinated development of both urban and rural areas. CSG is human-oriented and facilitates mutual development of the company itself and its employees. CSG is committed to establish itself the best employer and achieve advance with its stakeholders. CSG staff is dedicated to its mission of bringing brightness and happiness for the society.

■ Service Agriculture, Rural Population and Rural Areas >> ■ Social welfare >> ■ Cooperation and win-win

21.3 billion RMB was invested to develop power grid in the rural area.

 $213_{\text{billion RMB}}$

96.5% of employees received training.

96.5%

63,889 person-times participated in voluntary activities.

63,889 billion RMB

>>

Employees' development



The five provinces and regions in CSG's service area are unevenly balanced. Poverty stricken areas, mountainous areas have created challenges in power projects construction, technology difficulty, unit investment cost and low return rate. CSG adheres to the nation's policy on Benefitting Rural Population, and treat rural power grid development as the key component in corporate social responsibilities. CSG facilitates rural power grid development and makes due contribution to rural areas development.

Increase Investment in Rural Network

In 2011, CSG invested RMB21.3 billion on upgrading and retrofitting rural power grids. 105 110kV substations, 2,727 km power transmission lines, 216 35kV substations, 3,371 kM power transmission lines, 22,768 km power transmission lines at the voltage of 10kV, 21,621 transformer station areas for rural power distribution, and 59,435 low voltage lines and 941,944 household meters were built and upgraded.

Electricity to Every Rural Household

CSG invested an ad hoc fund on power supply to rural areas. 22 administrative villages with a population of 30,000 households have access to power supply. Except for Yunnan province, every household under the coverage of power grids has power supply in the other four provinces (Guangdong, Guangxin, Guizhou and Hainan). Power supply rate at township, village and household is 100% 99.98% 99.76% respectively.

> ▼ Rural power staff was upgrading low voltage power transmission lines for villagers.





 Chuxiong Power Supply Bureau transmitted power to Miao Ethnic Minority families

Improve Rural Power Service

We encourage county-level power supply enterprises to bring their management in line with corporate standard, and we try our best to deliver quality service to our rural customers and urban customers.

- CSG advanced rural electricity reform, conducted pilot reform on standardized labour relations and remuneration management of rural electricians. CSG established standardized rural power team, and merged 72 county-level power plants and rural power institutions, RMB15.92 billion rural power assets and 28,000 rural power staff.
- □ CSG practices subsidiary-based management to county-level power plants and brings their management practice in line with benchmark enterprises. CSG conducted assessments to county-level power plants and 60 power plants were rated as outstanding.
- □ All county-level power supply enterprises have kept their promise, 80% of them ranked top in local industry review. 95598 customer hotline services are available in all rural areas.

Backgroung knowledge

At present, there are 77,000 population have no access to power in CSG's service area. Most of them are ethnic minorities residing in remote areas of Yunnan, CSG are committed to deliver universal

Shoulder universal service and facilitate ethnic harmony

In CSG's service area, there are 34 ethnic minority, Yie ethnic minority, Yao ethnic minority, Miao ethnic minority, Yie ethnic minority, Li ethnic minority, to name just a few,etc, with the population of 48.5047 million, accounting for 20.23% of the total population in the five provinces and regions.

Ever since CSG's foundation, the company has been committed to universal power service and has concerned about power transmission and power use of ethnic minorities in the five provinces and regions. Despite of the challenges posed by remote locations, sparsely populated villages, inconvenient transport conditions, CSG staff is making every effort to transmit electricity to ethnic minorities.

In the 12th Five-Year-Plan period, CSG will invest RMB111.6 billion on retrofitting and upgrading of rural power grid, and will realize "electricity to every household"in its service area. By the end of the 12th Five-Year-Plan period, all ethnic minorities in CSG's service area will have access to power service and CSG is making active contribution to facilitate ethnic harmony.

Distribution of ethnic minorities in the five provinces and regions











Guangdong

Zhuang ethnic minority, Yao ethnic minority, She ethnic minority, Hui ethnic minority, Man ethnic minority

Guangxi Zhuang Ethnic Minority Autonomous Region

Zhuang ethnic minority, Yao ethnic minority, Miao ethnic minority, Dong ethnic minority. Mulao ethnic minority. Maonan ethnic minority, Hui ethnic minority, Jing ethnic minority, Yi ethnic minority, Shui ethnic minority, Gelao ethnic minority

Guizhou Province

Miao ethnic minority, Buyi ethnic minority, Dong ethnic minority, Tujia ethnic minority, Yi ethnic minority, Gelao ethnic minority. Shui ethnic minority. Hui ethnic minority, Bai ethnic minority, Yao ethnic minority, Zhuang ethnic minority, She ethnic minority. Maonan ethnic minority. Mongolian ethnic minority, Mulao ethnic minority, Man ethnic minority, Qiang ethnic minority

Yunan Province

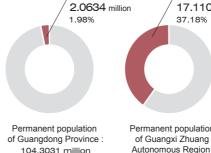
Yi ethnic minority, Bai ethnic minority, Hani ethnic minority, Zhuang ethnic minority, Miao ethnic minority, Lisu ethnic minority, Hui ethnic minority, Lahu ethnic minority, Naxi ethnic minority, Yao ethnic minority, Zang ethnic minority, Jingpo ethnic minority, Bulang ethnic minority, Pumi ethnic minority, Nu ethnic minority, Jinuo ethnic minority, Mongolian ethnic minority, Dulong ethnic minority, Man ethnic minority, Shui ethnic minority, Buyi ethnic minority

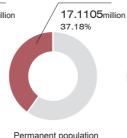
Hainan Province

Li ethnic minority, Miao ethnic minority, Zhuang ethnic minority, Hui ethnic minority

Total population of ethnic minorities in the five provinces and regions: 48.5047 million

Population of ethnic minorities



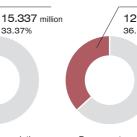


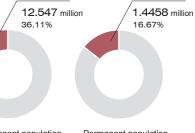
46.0266 million



of Yunnan Province:

45.966 million





Permanent population of Guizhou Province: 34.7465 million

Permanent population of Hainan Province 86.715 million

Supply power to the place afar and light the Drung River

With a population of 6,355, Drung is one of the smallest ethnic groups in China and was the last one that had no access to electricity.

Drung River Town, the only habitation for Drung people, is located in the Drung River Valley in the north of Lisu Autonomous Prefecture of Nujiang River, Yunnan Province. Situated at the border between China and Myanmar and between Yunnan Province and Tibet, it is next to Myanmar in the southwest and Chawalong Town, Chayu County, Tibet Autonomous Region in the north, adjacent to India. Crisscrossed by high mountains and deep valleys, Drung River Town is isolated from the outside world by heavy snow from Dec to May each year. It is one of the poorest areas inhabited by ethnic minorities in China.

The total power bill of Drung River Town in 2011 was no more than RMB 100,000 as compared to RMB 4 million of maintenance and manpower fees. Our operation cost was over 60 times that of the power payment. If power source construction in the mid and long term is included, the total investment will be over 300 million Yuan, with the investment for each household reaching RMB 300,000. To build harmony among different ethnic groups and different social sectors, CSG has carried out the activity of "joining hands with Drung River" and supplied power to the town. As a result, the Drung people have changed their aboriginal life pattern to a modern one and enjoyed social growth.







Drung students in a primary school received modern education in the computer room donated by CSG



▲ To bring light to the Drung people, Nujiang Power Supply Company of Yunnan Power Grid carried out construction in a sharp-cut cliff.

"We were in bad need of power. The older generation has never dreamed that they could enjoy lighting and various electric appliances in everyday life."

—— Li Deming, Head of Drung River Town

please visit CSG official website and search articles on "light Drung River"

■ Social Welfare

The company gives full support to the development of public causes, such as education, poverty-alleviation in Xinjiang and volunteering. We started preparation work on CSG Corporate Charity Fund. No community complaints filed in 2010.

Poverty-Alleviation

We make substantial efforts to revive economy in remote areas and to increase local residents' income; we build Hope primary schools, support construction in power-stricken areas and establish ad hoc poverty-alleviation fund for poor areas. For two consecutive years, the company has donated a total RMB 30 million to the "Pverty Alleviation Day, 30th, June" in Guangzhou.

Disaster-Relief

When natural disasters such as earthquake, typhoon, flood and ice disaster strike, CSG makes utmost devotion in restoring power supply as well as materials and capital donations to disaster-relief campaigns and after-disaster reconstruction.

□ CSG invested RMB4.95 million to build 11 CSG well, 5 CSG ditch, 2 CSG pond in drought -stricken areas in Guizhou. 9 prefectures, autonomous regions and cities, or 43,600 people, benefit from CSG's charity work.

Support to Xinjiang

Since 2005, CSG has sent eight division-chiefs in 4 different groups to work in Maigaiti County, region of Xinjiang Uygur Autonomous Region. In aggregate, CSG has raised fund of RMB 90 million for education, Medicare, sports facilities, livelihood projects and infrastructure construction.

- CSG organized a campaign to raise funding for Maigaiti County. More than RMB 3 million was raised in the campaign, and CSG invested RMB 2.0279 million in Bilingual Education Award in Maigaiti County.
- □ CSG supported lighting projects in Maigaiti County for the benefit of local residents. RMB 4.9 million was invested in CSG Avenue project.
- □ CSG organized honey melon purchase from Xinjiang to support agriculture industry in Maigaiti County.

Volunteers

CSG employees actively participate in volunteering work. Volunteering campaign with the theme of anti-drought, Project Hope, care migrant workers' children, quality service, energy-saving and emission reduction, attracted 63,889 people/times participation.



▲ Linchuang Power Supply Bureau were making donations to earthquake stricken areas in Yingjiang

(unit : RMR10 000) Donation in 2011

Donation in 2011	(unit : RIVIB 10,000)
Donation	Amount
1 、Relief Donation	3219.60
a.donation to disaster-affected area	9.00
b.donation to designated poverty-stricken areas	2575.13
c.donation to designated region	493.35
Among which: donation to Xinjiang	490.00
d.other relief donation	142.12
2、Social Welfare Donation	4593.32
a.donation to education, science, culture, healthcare and sports	298.16
b.donation to public facility construction	4076.48
c.other social welfare donation	218.68
3、other donation	466.98
Total amount	8279.90



▲ Volunteers event: Happy CSG and beautiful future

- □ CSG reached an agreement with Asian Development Bank
- □ CSG worked with world leading power companies, including: CLP, EDF and Singapore Power on exchanges and training programs. In total, 26 groups and 463 people



Ability to Fulfill Obligations

Strengthen Contractors'

CSG attaches great importance to projects quality, ensuring construction safety. It takes various measures to increase contractors' awareness of responsibilities and participation in the fulfillment of their responsibilities.

- CSG has established contractor creditability rating system, regulates the management of contractors, and forbids rule-violating enterprises to be involved in CBS's programs for certain period of time
- □ CSG has introduced "Five Forbidden" rules of construction safety management, and carried out inspections on any violations, and strictly forbids illegal contracting, subcontracting and lack of administration after contracting
- □ CSG held training workshops for on-site construction workers for the first time to improve their skills

CSG takes the initiative to establish an international communication platform and expands external exchange channels. We have established extensive cooperation with world renowned power companies and international organizations.

- and MOU with Better Place, Israel and Korean Electric
- (ADB) on high caliber human resources training programs. Every year, 2-3 outstanding staff will be seconded to ADB for work for 2 years.
- were involved in exchanges and training in 2011.



▲ Zhao Jianguo, CSG board chairman mwt Jeff Immelt. GE board chairman and CEO.

■ Enhance Cooperation with **Power Generation Companies**

has been filed by CSG's cooperative partners.

■ Win-Win Cooperation

- □ CSG sticks to coordinated operation of power grid, and takes concrete measures to improve the coordination between power grid and power plants. Both the power grid and power plants work closely to guarantee the stable and safe operation and support economic development.
- □ CSG actively implements an open, fair, and impartial dispatching. We publish dispatching information at regular intervals, and survey indicates that 95.8% of clients are happy with the dispatching service.
- We actively promote compensation to supplementary services of regional power plants and interconnection operation assessment. We are dedicated to improvement of DSM and optimization of power grid operation index.
- □ CSG takes the initiative to shoulder responsibilities in power generators' interconnection with the power grid. We settle payments with power plants on a timely basis to facilitate harmonious mutual development.

Participate Industrial Exchange

CSG attaches importance to communication with industrial peers, supports the development of industrial associations, and takes part in different kinds of exchanging activities.

- □ We participated in CIGRE, the 19th CEPSI and Conference on Electric power Industry across Taiwan Strait and the 3rd Smart Grid Summit in Singapore.
- □ We participated 2011 Boao Asian Forum, the 15th St. Petersberg International Economic Forum, the 8th China-ASEAN Expo and the 6th Chinese -German Forum For Economic and Technological Cooperation.

■ Guarantee Supplier's Interests

Suppliers are regarded as important strategic partners for CSG's development. CSG seeks to build trust, foster complementary relationships and creates a sustainable value chain for their mutual

- □ CSG has improved its bidding management system, and has practiced standardized bidding management to ensure procurement transparency and provided a fair competitive environment for suppliers. Open bids are 100% available for construction, design and supervision projects.
- □ CSG adheres to principles and guidelines of responsible procurement, prohibit discrimination against manufacturers, any kind of corruption or bribery, and encourages the development responsible suppliers by increasing the level of procurement
- □ CSG supports growth of excellent local suppliers; increases the ratio of domestic procurement. CSG's centralized procurement rate for domestic facilities has reached 100%.



▲ A foreign guest was visiting CSG pavilion in the 8th China-ASEAN Expo

CSG's Role in Major Social Organizations

Social Organization	Function
China Electricity Council	Vice Chairman
Power Branch, China Institute of Internal Auditors	Vice Director
Power Branch, China Inspection and Supervision Society	Vice Chairman
CEPSI	Member
Japan-Sino Science and Technology Association	Member
National Council for China Labor and Social Security	Member

CSG insists on the mutually-beneficial and all-win cooperation strategy, committed to social economic and environment

development optimization and is striving to achieve long term prosperity and development with stakeholders. No complaint

Separation of Power Plants from Power Grids

- ☐ In March, as a major step to deepen national electric power system reform, CSG put forwards its restructuring reform in line with the State Council's approved plan. It carefully fulfills the requirements laid out by State Asset Administration Committee, steadily implements the task and smoothly completes the separation of power plants from power grids, maintaining the stability of the whole industry.
- □ 46,687 employees are among CSG list (29,327 employees in payroll, 17,360 retirees), while 5,319 employees in payroll and 11 retirees were among subsidiary enterprises list. Total assets of subsidiary enterprises reached about 20 billion RMB.
- □ On September, 29, 2011, Power Construction Corporation of China and China Energy Engineering Group were established, which marked the successful separation of power plants from grids in power industry.

Background information

Power Construction Corporation of China (POWER CORP CHINA) is formed by merging and restructuring of Sinohydro Corporation, HydroChina Corporation and 14 provincial (local) survey & design institutions, power construction companies and equipment manufactures under State Grid and China Southern Power Grid. As of the end of 2010, POWER CORP CHINA's total assets reached RMB 196 billion, total employer number 202,700, business revenue RMB 160 billion.

China Energy Engineering Group Co.Ltd., is founded by merging and restructuring of China Gezhouba Group Corporation. China Power Engineering Consulting (Group) Corporation, secondary units under CSG, and secondary units under 15 provinces (regions/cities) under the State Power Grid. In 2010, China Energy Engineering Group Co.Ltd's business revenue was RMB 110 billion, total assets was RMB120 billion, and employed 160,000 people.

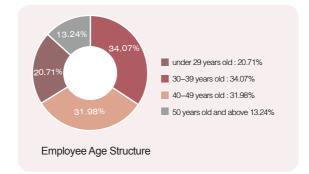
■ Employee Development

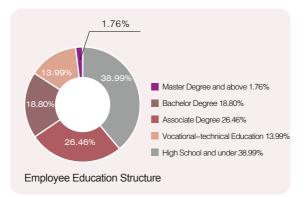
CSG sticks to human-oriented culture and harmonious labor relations. The company is dedicated to creating a sound working condition to boost their motivation and creativity and achieve mutual growth with staff members.

By the end of 2011, we had 314,000 employees; female employees accounted for 24.89%, and minority nationality employees accounted for 24.09%. We are proud to have a more balanced staff age structure and education background.

Employee development in 2011

Performances
100%
7.8‰
9 days
RMB18.6807 million
73.9%
100%
20,000+ people





CSG's "Six Major Programs" for Talents Development

In light of National Medium- and Long-term Talent Development Plan (2010-2020) and Development Strategy, CSG started the implementation of "Six Major Programs" as mainstay to cultivate talents.



Employee Interests

CSG acts in strict accordance with the Labour Contract Law of the People's Republic of China. We comply with the laws and regulations; pay pension, medical and unemployment insurances for our staff. We have sign contracts with staff in compliance with the national law. In 2011, no significant labour dispute occurred.

> CSG has phased in a comprehensive employment mechanism based on position management, with legal person as subject of liabilities and labor contract as the core, specifies the rights and obligations of the parties of the labor contracts, and has realized the goal of equal pay for equal work of the same position.

CSG has standardized payment allocation, and established payment allocation mechanism based on performance, and gives preference to key base and front-line positions.

CSG respects human rights, treats people of different genders, ethnicities equally, care about the well-being of female officials and officials from ethnic minority groups, prohibits child labor, hires disabled people in line with government polices.



CSG has improved vacation, pension, and supplementary medical insurance mechanisms strictly in correspondence with national laws and regulations

CSG has established pension mechanism for retirees: ensure basic living standards for low-income retirees

■ Employee Occupational Safety and Health (OSH)

CSG attaches great priority to OSH, and is dedicated to prevention of accidents and occupational hazards. No occupational disease happened in 2011.

- CSG has perfected OSH mechanism and conducted OSH
- □ We offer health check for employees at a regular basis
- □ CSG implements Staff Mentoring Programme and reinforces staff mentorship. In 2011, CSG completed 5000+ mentoring cases.

Democratic Management

CSG gives full play to the role of employee representative conference and trade union, and involves employees in democratic management. We take solid measures to guarantee employees' right to know, freedom of expression, participation right and supervision right.

- □ We put employee representatives system in place and facilitate proposals made by employee representatives. All proposes are handled.
- □ CSG has established employee representative inspection and examination system and has conducted inspection, supervision and examination.
- □ CSG facilitate open business and disclosed 3230 issues.



Employee training

CSG has constantly improved the employee training system with focuses on job competence, optimizing and integrating learning and training resources. We have implemented multi-level and various types of professional training with specific objectives and practical effect so as to enhance the overall quality and job competence of our employees.

Training base development

Course development

Teaching staff

Online training

We have set up training evaluation center, appointed three skills training bases at the company level and optimized and integrated 71 existing training bases.

have formulated standards for job competence training and developed teaching materials. We now have 12.264 training courses and 7.799 teaching outlines in electronic form.

We have 202 full-time and 8,674 part-time training We have improved training management by adopting information technology and have provided online training to employees to raise their willingness to study.

We have enhanced employees' capabilities by focusing on their job competence. We have offered 22,000 training sessions and 1.37 million person-time employees were trained. 98% of the staff successfully completed the trainings.

Career Development

We have enhanced human resources planning and improved ways of talents recruitment. Job positions were better managed to provide equal opportunities for the employees.

- □ In the principle of democracy, openness, competition and choosing the excellent, we have hired 9,041 professionals and fresh university graduates with diverse backgrounds.
- □ We have standardized the classification of job positions and divided the jobs into 4 categories, 32 sub-categories and 3,966 positions.
- □ We have expanded the range of disciplines eligible for professional titles assessment. The discipline of law has

been included in our professional titles assessment scheme. We have finished professional qualification assessment in five disciplines that cover 12 sub-disciplines and 3,504 people and organized technical assessment for 47,000 people.

- □ CSG has introduced technical specialists selection, in total, 18 technical specialists and 87 assistant technical specialists have been selected and hired.
- □ We have been actively introducing high-caliber talents from abroad. In 2011, the company was selected as an innovation and enterprising base for overseas high-level talents by the Organization Department of the Central Committee of the CPC.

The awards won by employees in 2011

Award	Number	Awarding Body
China Labor Medal, China Labor Certificate China Labor Excellent Woman Award and Excellent Worker Award	28	All-China Federation of Trade Unions
Winner of the "Ankang Cup" Competition	25	All-China Federation of Trade Unions State Administration of Work Safety
Excellent Trade Union in Energy Chemistry Sector Excellent Trade Union Staff and Excellent Worker in 2011	20	China Union of Energy Chemistry
Excellent Worker Award Excellent Staff Member Award Excellent Technical Specialist	120	CSG

Managerial staff development

CSG attaches great importance to the development and management of managerial staff. We have enhanced the training for young managers, expanded our vision in selecting staff, equipped the company with strong management team and improved the employees' satisfaction for talents selection and appointment.

Selection of managerial staff

We have introduced greater competition to managerial staff selection. Five deputy job posts in the executive body and one director-level job were recruited nationwide. Eight deputy job posts in the executive body of Guangzhou Power Supply Bureau and Shenzhen Power Supply Bureau were recruited within CSG

Staff exchange

We have carried out a lot of staff exchanges. 36 people were exchanged between the east and west of the country. 8 staff of CSG was relocated to city and county level companies. We have also exchanged 17 managers with central and local government departments.

Strategic training of young managers

Focusing on strategic training of young managers, we have offered training sessions to 100 outstanding young managers, some of whom have been temporarily transferred to grassroots or hard job posts.

Manager training

To push forward the manager training, we have set up the Party School in our company to improve the competence of managers. 90,143 person-times managerial staff has been trained and the training duration has reached 932, 464 hours. More than 6,900 managers at the director level or above have been trained.

Staff care

The company places importance on people care. It shows its love and care through material and non-material rewards.

- □ We have explored the long-term mechanism of poverty
- □ We fully support the staff to give livelihood assistance and medical assistance to each other as well as giving financial aids to students. We have improved our welfare system and offered a "menu" for the staff to choose their welfare so as to enhance their sense of belonging.
- □ We have implemented the Happy CSG scheme and developed the happiness index to enhance the sense of happiness of our staff.
- □ We have carried out cultural activities for the employees, such as singing and dancing party, speech contest, sports competition, talent shows, photography competitions and reading plans.
- □ We show our love and care for female employees by offering pregnancy test, maternal leave and subsidies.

Gala show of Hainan Power Grid Company





Long-distance running competition of Panyu Power Grid Company in Guangzhou

Fund Provided to Staff in Unfavorable Situation in 2011

Unit	Content	Person/time	Amount (unit: 10,000RMB)
CSG Headquarter	Grants	16956	704.69
Guangdong Power Grid	Grants to households receiving subsistence allowance, underprivileged employees, visit retired staff	1181	205.34
Yunnan Power Grid	Grants to employees in financial need, visit model workers, employees' survivors, front-line employees	8900	785.00
Yunnan Power Grid	Grants to employees in financial need, visit model workers, employees' survivors	1405	98.20
Guizhou Power Grid	Grants to employees in financial need , visit model workers, front–line employees	562	37.96
Hainan Power Grid	Grants to employees in financial need, visit model workers	461	36.88

Responsibility Management

CSG has incorporated social responsibility into its strategic management and daily operation and production. CSG facilitates social responsibility in accordance with regulations, and practices social responsibility in a step by step and systematic manner .We communicate with and involve stakeholders in corporate responsibility programs, and has established strategy-driving social responsibility model with CSG characteristics.

Responsibility Governance

CSG has enhanced social responsibility organization structure development. We have improved social responsibility management system and incorporated social responsibility in operaion management. The company has established social responsibility organization structure covering headquarter, branch companies, and power plants and has specified social responsibility work at all levels. CSG designated departments in power supply bureaus at grass root level, with full time or part time staff overseeing social responsibility issue.

Responsibility advancement

- ☐ CSG published a book entitled CSG Corporate Social Responsibility ABC with the theme of "A responsible CSG is expressed by practice". The book explains the significances of practicing corporate social responsibility (CSR), CSG's CSR main areas, the relationship between CSR and employees work in details. The book was published 30,000 copies and distributed to every work team to better their understanding of CSR and effectively facilitated CSR in daily production and operation.
- □ CSG published a book on Year 2010 Outstanding CSR Practice Case Studies, highlighting and promoting best practice in practicing CSR at all levels.





- ☐ In May, 2011, CSR participated in the press conference on "2010 China Industrial Economics Industry CSR Report" organized by China Federation of Industrial Economics. CSR was chosen as the representative of Central Enterprise to share its philosophy and practice of CSR.
- □ In Nov, 2011, CSG established the third "CSR Demonstration Base" in Electric Power Research Institute, Yunnan Power Grid. The base is CSG's showcase in CSR and demonstration platform of its independent science and technology innovation.
- □ Strategy planning Department of CSG was invited to deliver lectures on CSG's CSR to MBA students at Chinese Academy of Social Sciences and at universities in Guangzhou.
- □ CSG was invited to participate in SASAC's research on Management Guidance on Central Enterprise's CSR.
- □ CSG completed research on CSG's Model in Advancing CSR, and summarized and highlighted a CSG model, specified objectives, thought, steps, landmark events and main measures.

Responsibility innovation

Carried out CSR Day

On 20th, May, 2011. CSG held the CSR Day campaign, the first to do so in central enterprises



▲ Zhao Jianguo, CSG board chairman visited the CSR Day

Based on our incomplete statistics, more than 20,000 CSR reports, 50,000 leaflets on energy saving and power supply business were distributed on site by power supply bureaus. More than 40,000 people participated in the event. CSR Day brought CSG and power plants closer to stakeholders, and bettered general public's understanding and recognition of CSG.

CSG's CSR Day was chosen as Top Ten Events in Chinese Enterprises' CSR by WTO Economic Tribune

A Green and Responsible CSG

(Theme of the Event)

CSG released Year 2010 CSR Report and CSG Green Development Report



Five branch companies/ subsidiaries released their own edition of CSR Reports

15 power supply bureau in Guangzhou, Shenzhen, Dongguan, Foshan, Zhuhai, Nanjing, Guilin, Liuzhou, Kunming, Qujing, Honghe, Guiyang, Zunyi, Haikou and Sanya city conducted CSR event.

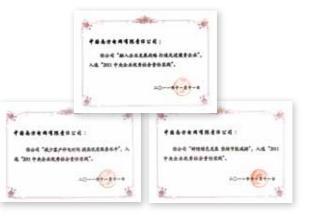
Responsibility Honor

In 2011, CSG's practice of corporate social responsibility won recognition from its stakeholders and a number of prestigious awards.

- ☐ In April, 2010, CSG Corporate Social Responsibility Report 2010 was awarded 5 Stars by CSR Research Center, Economics Division, Chinese Academy of Social Sciences, the first corporate social responsibility report receiving the highest ranking in China.
- ☐ In Nov, 2011, Chinese Academy of Social Sciences published Blue paper- Corporate Social Responsibility 2011, CSG ranked No.4th in corporate social responsibility development index in Top 100 Chinese enterprises, moving two places up.
- ☐ In Nov,2011, CSG was invited to make a talk in 2011 CSR Working Conference organized by SASAC, the State Council. The three CSR case studies reported by CSG were all awarded " 2011 Best Practice of Central Enterprise in CSR".
- ☐ In Dec, 2011, CSG participated in the 4th China CSR Summit organized bu Xinhua Net, and for the first time. CSG was awarded "Outstanding Chinese Enterprise in CSR Practice". The award was chosen by Xinhua Net voting results.

CSG has played an important role in helping China earn a right to be heard in world CSR practice . CSG 2010 CSR Report is a report infused with national self-confidence.

> ---- Research Center, Economics Division, Chinese Academy of Social Sciences



69 A Myriad of Twinkling Lights, Great Rapport of CSG

Responsibility Management | 70

☐ In Dec, 2012, CSG was awarded Leading Enterprises Golden Bee Award: Leadership Enterprise and its 2010 CSR Reports were awarded Golden Bee Award for Corporate Social Responsibility Report-Evergreen Prize for three consecutive years. CSG's CSR Report was highly recommended by the organizer - WTO Economic Tribune as a model report.

a 新典2011世界企业社会集任秘书 N M M & & & HANGHIMPERIZHRAN and the same

CSG has established a stable and sustained information collection channel and has set up highly efficient and smooth information disclosure mechanism. Its CSR report is very professional and we highly recommend its report as a model report.

— WTO Economic Tribune



Communication and Participation of the Stakeholders

CSG Constantly improves transparency and constantly adopts innovative approaches to communicate with stakeholders and sincerely respond to stakeholders' expectations and concerns, and is trying its utmost to win stakholders' understanding, recognition and support .

Analysis On CSG's communication with its stakeholders

Stakeholders	Expectation and requirements	Communication and response	Examples
Government	In strict complaince with laws and regulations, observe taxation obligation safe power supply State-owned asset value maintenance and appreciation Sustained and stable ROI	Compliance, taxation obligation, implement the state energy policy, work closely with government to facilitate power grid construction, improve daily management, take accountability , report work progress , improve corporate governance	Zhao Jianguo , CSG board chairman met Qin Guangrong, Secretary of Yunnan CPC and held a meeting on power supply at late 2011 and early 2012, Yunnan Power supply to other provinces/regions during the 12th and 13rd Five-Year-Plan period, and facilitating Yunnan's role as a bridgehead.
staffs	Salary and welfare Staff health and safety Fair promotion and career development Staff care	pay salary on a timely basis, pay social insurance in accordance with laws and regulation, involve staff in management process, provide a healthy working condition, organize training programmes on health and safety, help staff in need	CSG has formulated a policy to select and foster 100 young managerial staff
customers	SAIDI reduction High quality power supply, Quality service, energy saving support	Reliable power supply, customer satisfaction management, power grid construction and upgrading, technology and management innovation, workshops and interviews, explore energy saving approaches	Guangxi Power Grid upgraded its prefecture and city level business halls and realized 24 hour self-services at business halls in all prefectures and cities.
partners	Commitment Open, fair and impartial procurement Experience sharing	Open purchase information; Accept feedback and suggestion; Negotiation and communication; Project cooperation;	Yunnan Power Grid signed MOU on Related issues on Power Grids in Northern Laos, and specified cardinal principles covering cooperation scope.
environment	Energy saving and emission reduction Resources saving Tackle climate change Eco-environment protection	Energy-saving oriented generation scheduling; Open environment information; environment impact assessment; environment technology research; green office action; facilitate electric care industry development	Guangdong Power Grid collected "Good ideas in saving electricity consumed by household appliances" under the assistance of media. A panel consisting of specialists and media reporters reviewed more than 3000 ideas proposed by citizens.
Community and public	Public utility development Poverty-relief Community exchanges and communication	Understand community demand; Community Education and publicity; Workshop and communication; Website development; Charity	CSG's one level-one portal site and five level-two portal sites has operated on-line. In terms of website performances, CSG's websites continued to be ranked in Top Ten list.



A new way of communicating with stakeholders: searching for electricity in Shenzhen Universiade

Before the Shenzhen Universiade, CSG hosted the "searching for electricity" activity under the theme of "Green Power, Light the Universiade'. More than 30 representatives, including students, local residents, media professionals and Olympic gold medalists spent nine days travelling the route of "west-to-east power transmission". They trudged for over 4000 kilometers and crossed four provinces, including Yunnan, Guangxi, Guizhou and Guangdong to find out how electricity was produced from water and came all the way from Yunnan and Guizhou Plateau, Guangxi and Guangdong to reach Shenzhen and light the Universiade.

Use Each Kilowatt of Power with a Loving Heart



The participants watched interviewed the ordinary front-line workers and learned the whole process of electricity production and supply to Universiade. They knew the efforts behind each kilowatt of power and felt the love of ordinary CSG workers.



Seven representatives wrote a proposal to the young people and called for the energy saving in our everyday life to bring the light, warmth and happiness to more people in need.

Dear young friends	29th July, 2011
Electricity is essential for our study	work and life However we all take it for granted that
electricity is a renewable energy that	t comes easily. Very few of us adhere to the Principle of
"saving energy"	
From July 15 to 23, we five university	student representatives from Guangdong, Hong Kong and Macau
and two Shenzhen citizens joined the a	charity activity of "searching for electricity" organized by CSG?
which was part of the 'light the Uni	versiade and show love of CSG'' scheme. We travelled across
four Provinces Yunnan Guizhow Guangxi	and Guangdong within 9 days to find out how electricity was
Produced	
"Searching for electricity" shocked us	s and changed our values fundamentally. As university students
we had never thought how difficult it	t was for electricity to be produced Behind every kilowatt of
Power lies the contribution made by th	nousands of production workers line patrol workers and power
Protection workers who have scarified	d their youths or even lives for the job. We went along the
inspection line in Yexiang Valley in Xishu	uangbanna where the mountains were stiff and the dangers
were everywhere But the line inspec	tors have to walk this line every day with more than 40
kilograms of maintenance materials. At	the Biluo Summit with several thousand meters altitude the
line inspectors had nothing to eat in hu	unger but wild fruits and slept on stones when tired
They worked under such harsh condition	ons with low income day by day. The belief for them to work o
was to bring light to all families. Who	at we saw and heard in the Past 9 days also made us realize
that in some remote mountainous areas	s some people still lived in places without any power supply. They
hoped that someday electricity could o	change their life
Dear friends let us use electricity wi	ith a loving heart It is neither infinite nor does it come easily.

wiring board Switch off the stand-by electronic devices Raise the temperature of air conditioners These tiny little things can be done by you and me Let us save energy and turn the efforts of Power workers to more electricity. Let's bring light warmth and happiness to people in greater need chen Huihui, Liu Jiawei, Ouyang Huaji, Lin Shuyuan, Zhou Zhixuan, Li Erda

Responsibility Management | 72



Outlook for 2012

Year 2012 marks the first year in the 12th Five-Year-Plan. CSG will adhere to the main tasks set by the 12th Five-Year-Plan. The company has identified future priorities: Put specific policies in place, put service at top priority and always be committed; ensure safety, ensure growth and ensure stability; reinforce talent pool development, reinforce management and control mechanism, reinforce image building and reinforce party building. CSG will upgrade its management in an all-round manner, make specific measures to implement corporate strategies, and give full play to CSG's supporting role in guarantee and service to make active contribution to stable and rapid economic development and a harmonious community in the five provinces

CSG will reinforce safety production management, and roll out risk management mechanism on production, reinforce safety supervision and management at whole production process, put safe production accountability system in places, strengthen comprehensive preventative measures, strengthen safe production training and education, perfect contingency plans and prevent accidents involving death and serious misoperation accidents.

CSG will guarantee reliable power supply and enhance operation management of power grid, reinforce equipment management, safe operation management, facilitate science and technology management; CSG will keep a close eye on market update, be forward looking in understanding supply and demand changes, issue early warning of thermal coal, rainfall and load, CSG will take flexible approaches to achieve 99.944% power $supply\ reliability\ rate\ in\ urban\ areas, 99.855\%\ power\ supply\ reliability\ rate\ in\ rural\ areas, and\ provide\ reliable$ power supply for the five provinces and region.

CSG will reinforce investment management, optimize investment priority to ensure investment return. The company will put Power Grid Planning in the 12th Five-Year-Plan Period in place, facilitate upgrading of rural power grid, and provide electricity to the 77,000 people who currently have no power supply access, and realize "electricity to every household"; CSG will take more concrete steps and more effective measures to create outstanding operation performances and make its due contribution to the stable and rapod economic growth in the five provinces and region.

CSG will advance its Green Action, and practice energy-saving based power generation dispatching and line loss management in an in-depth manner; CSG will reinforce demand-side management, and continue practices on energy saving diagnosis, energy management contract (EMC), the company will play a guiding role to facilitate orderly development of new energy and EV industry and serve the transformation to service industry.

CSG will advance talent pool development, reinforce capacity building and integration education, facilitate standardized recruitment and employment and strive to build a harmonious labour relations, CSG will facilitate Happy CSG project in an active and sound way, will encourage its employees to shoulder CSR, and make every effort to ensure power supply.

Looking to the future, CSG will position itself a service -oriented corporation and highlight its nature as a pivot industry important to national economy and people's livelihood, and its role as a basic industry. CSG will take more active measures in developing real economy, improvement of people's livelihood, coordinated regional development, independent innovation, energy saving and emission reduction, upgrading of rural power grid, and Going Global initiatives so as to make greater contribution for the better, faster development of the five provinces and region.

Third-party Evaluation



CSG 2011 CSR Report Rating

Entrusted by CSG, the Corporate Social Responsibility Research Center of Chinese Academy of Social Sciences, Economics Department selected experts from the China Corporate Social Responsibility Report Rating Panel to sit the "Rating Panel of 2011 Corporate Social Responsibility Report of China Southern Power Grid Co., Ltd." to assess and rate CSG 2011 CSR Report.

CASS-CSR 2.0 iointly released by the Corporate Social Responsibility Research Center of Chinese Academy of Social Sciences, Economics Department, China National Enterprise Federation, China Petrochemical Federation , China Light Industry Federation China Corporate Citizen Committee, Sino-German Trade and Sustainable Development and Corporate Social Responsibility Project, WTO Tribune, and the Corporate Social Responsibility Research Center of Chinese Academy of Social Sciences, Economics Department.

2.Rating Conclusion

Completeness (****)

The report disclosed 79.5% core indicators in power supply sectors and demonstrated very good completeness. Core indicators including power supply, economic performances, green and environment, social harmony, responsibility management.

The report responds to the expectations of stakeholders in a comprehensive way. Substantive topics on "Guarantee power supply" "Guarantee power use in rural and remote areas" "Comprehensive outage management" are included.

The report disclosed a number of negative information involving topics on : outage, equipment accidents, ethical operation and occupational disease management, explained and reviewed some incidents in a detailed manner, and put forward correction measures. The report is an outstanding one in terms of balancing positive and negative information.

Comparability (★★★★☆)

The report disclosed a number of indicators for the past 3 consecutive years, and demonstrated very good vertical comparability; the report disclosed indicators including SAIDI, power supply reliability, voltage pass rate, and therefore, demonstrated excellent horizontal comparability.

Readability (****)

The report is well structured, fluent, concise and to the point- with clear focus on CSG's CSR practice. The report is very well supported by a number of expression forms; in terms of layout, the report is exquisite, it is reader friendly as it is equipped with glossaries. The report performed very well in readability.

Innovativeness (★★★★★)

The report highlighted CSG's core value- "A Myriad of Twinkling Lights, Great Rapport of CSG,

with the focus on corporate development strategy, Mid-to-Long Term Development Strategy and systematic practice of CSR. It is a very innovative report.

Synthetic Rating (*****)

The 2011 Corporate Social Responsibility Report of China Southern Power Grid Co., Ltd. was rated five stars by the panel. It should be regarded as an outstanding corporate social responsibility report.

1.The report should disclose Key Performance Index (KPI) tables for the past few years to enhance its vertical comparability.

2. The report should disclose CSG's CSR planning and future plan to make it more forward-looking.

4.Rating Panel

Panel leader: PENG Huagang, Vice Consul, Director of SASAC Research Institute

Panel Member: MI Jianhua, Director of Power Reliability Management Center, SERC

YIN Gefei, Vice President of WTO Tribune

Yang Dongning, Associate Professor, Guanghua School of Management, Beijing University

ZHONG Hongwu, Director of the Corporate Social Responsibility Research Center, Economics

Department of Chinese Academy of Social Sciences



Chen Jiagui 陔佳貴

Director Economics Department of Chinese Academy of Social Sciences, Standing member of National Peoples' Congress

Peng Huagang

Panel leader . Director of SASA Research Institute

Third-party Evaluation

CHU Xuping Deputy Director, SASAC Research Institute

I read the 2011 Corporate Social Responsibility (herein after referred to as "CSR") Report of CSG. With rich content, highlights and distinctive features, it shows new progress made by CSG in corporate social responsibility.

First, it spreads decent value.

The ultimate drive for a company to carry out CSR lies in the value of all employees. The value is how a company views itself, its social nature and social significance. It is the pursuit and target that a company is committed to in its way forward. It also serves as the code of conduct for the organization behaviors. The core value of CSG is "A Myriad of Twinkling Lights, Great Rapport of CSG", which is candid, vivid, thought-provocative and inclusive. It expresses the company's concern for the customers and the environment, care for the employees and willingness to reward the

Based on its value, in 2011, CSG responded effectively to a number of challenges, such as natural disasters and serious shortage of power supply. To meet customer demand and provide quality service, it reduced outage time for customers, which was on par with international standard in some cities. It built the green development platform and reduced the overall line loss rate to 5.35 percent, achieving energy saving equivalent to 10.98 million tons of standard coal in the upstream and downstream industries. It provided electricity to 43,800 people who were otherwise without electricity, contributing to ethnic and social harmony. These figures were silent but telling. Having read the report, I was deeply impressed by the value of CSG employees.

Second, it enables CSR to be included in business management and operations.

The CSG has incorporated CSR into strategic management and advocated excellent concepts such as the "serving the customers, asset life cycle management and intensive management of resources". It has pushed forward management innovation to make sure that the core value and CSR are embedded in the business operations. CSG has established CSR index system (CSG-CSR1.0) according to its corporate features. It has also identified the key areas for CSR practice and carried out dynamic closed-loop management. The report publishes 170 indicators which are very substantive and complete. It is used by CSG as a tool in the whole process of management rather than a pure review of past performance. In this way, CSG has established an effective link between CSR performance review and CSR practice, which is an important innovation of CSR.

Third, it creates satisfaction for the stakeholders.

A company is an economic organization and a vehicle for stakeholders to achieve common interests as well. Therefore, the feedbacks from the stakeholders are essential for CSR performance of a company. In 2011, CSG worked hard and pursued innovative development through good service, excellent development and remarkable performance. It satisfied all stakeholders including the government, shareholders, the customers, the upstream and the downstream industries and the community. It proved itself to be a respectable company which ranked first in a number of local and provincial government evaluations and third-party evaluations.

I sincerely wish that CSG continue its efforts in development and innovation, and take the lead in establishing a Central Enterprise as a world leading company.

Third-party Evaluation

Vice President, WTO Tribune; Director General, International Research Centre of YIN Gefei Social Responsibility and Sustainable Development, Beijing University

I'm very impressed by the 2011 CSR Report of CSG. It has made progress based on the 2010 Report which was already very good. Fist, it innovates the way of report editing . Spanning across three years, 2010, 2011 and 2012, it is edited in advance instead of afterwards, which is innovative and helps to improve management. Second, the report deepens the concept of CSR by linking the core value of "A Myriad of Twinkling Lights, Great Rapport of CSG" with four responsibility areas. It provides a systematic guidance to CSR practices and highlights the core value as its soul. Third, the report publishes more core indicators to give a full picture of CSR. It explains what measures CSG has taken to better serve six prioritized user groups so as to respond to the concern of the stakeholders. It also shows how the company has fulfilled the responsibility of providing electricity to all ethnic minorities. It includes negative information to be more objective and balanced. In general, this report reaches a new height in terms of quality. It will continue to lead the development of CSR reports in China and has established a new international standard for CSR report.

MI Jianhua Director, Electricity Reliability Management Center, SERC

CSG discloses its CSR practices in five provinces and regions in South China in 2011, with the aim to provide safe, stable, reliable and high-quality power. Giving priority to safety, it ensured the safe and stable operation of the power grid under complex circumstances; focusing on serving the customers, it provided quality and reliable power products and services. It practiced the core value of "A Myriad of Twinkling Lights, Great Rapport of CSG" by ensuring power supply. In 2011, the company introduced measures in technology and management to improve the reliability of power supply. SAIDI of an urban user was 87.6 minutes fewer than that of the previous year and that of Guangdong Power Grid customers was 2.01 hours, the best in China provincial-level power grid companies. The supply reliability index of some economically developed cities reached the international standard. These achievements are worthy of recognition. Power production safety and quality service are the fundamental starting point of CSR. It is also a systematic and persistent undertaking that needs continuous improvement.

SHA Yiqiang Director of Research Office, China Electricity Council

I have been paying close attention to the development of CSG. The achievements of the company in corporate social responsibility are known to everyone. The company's 2011 CSR report is very clear in theory and framework. I'm particularly impressed by several points. First, according to the report, the company has linked its CSR practice to its core business. The report offers a comprehensive picture of the core issues of CSR in the power supply industry. It introduces CSG's promise for quality service for the first time and provides featured reports on CSG's important practices of serving the people, aiming for excellence and securing the supply for the Shenzhen Universiade. Other practices included "balancing supply and demand" and "expanding service to every ethnic group to promote ethnic harmony", which responded well to the concern and expectation of all stakeholders. Secondly, CSG has made many innovations, including the report editing model. The report spans 3 years and is drafted in advance. Third, the company has incorporated the core value into in its CSR framework to carry out responsibilities in four areas and six aspects. It has set up a very good example for other state-owned enterprises in China to carry out CSR.

75 A Myriad of Twinkling Lights, Great Rapport of CSG



Report Index

Report Directory	GRI benchmarking	CASS-CSR benchmarking
Cover	2.1	
inside Front Cover		P5.2
Responsibility Framework	4.8	P3.1/G1.1/G1.2
Board Chairman Speech	1.1/1.2/4.8	P2.1/P2.2/EC4/G1.1/G1.2
About Us/Company Leader	4.2/4.3	
About Us/Company Management	2.3/2.6/4.1/4.4/4.9	P4.1/P4.5/P4.6
About Us/Organization structure		M1.1
About Us/Introduction to Secondary Units	2.2/2.4/2.5/2.7/2.8	P4.2/P4.3/P4.4
mplementation of Mid-to-Long Development Strategy	2.9	
Feature report / Serve the people, To-Top	EC8	ESM2.15/S1.5
Feature report/Guarantee power supply to the Shenzhen Universiade to deliver wonderful games	1.2/S05	
Power Supply		ESS3.10/ESS3.11
Power Supply/Quality Service		
Power supply/ Quality service/Power supply pledge	PR1	P5.2
Power supply/ Quality service/Improve marketing service management	PR8	M2.1/M2.3/M2.4/M2.5/M2.8/M2.20
Power supply/ Quality service/Convenient service channel	EC8	
rower supply/ Quality service/Customer satisfaction assessment	EC8/PR5	M2.6
ower supply/ Quality service/Enhancing customer satisfaction		
ower Supply/Safe Production		
ower Supply/Safe Production/ Stable Operation of the Grid		
ower Supply/Safe Production/Sound Operation of the Facility		\$3.5/ES\$3.8/ES\$3.9/ES\$3.10
lower Supply/Safe Production/Standard Management of Safe Production	4.11	\$3.1/\$3.3/\$3.4/E\$\$3.7
lower Supply/Safe Production/Standard Management of Safe Production		S3.6/S3.12
ower supply/ Balance power supply and demand	EC9	5040 4 5 5040 4 7 5040 4 0 5040 4 0
ower Supply/Reliable Supply		ESM2.16/ESM2.17/ESM2.18/ESM2.19
ower SupplyReliable Supply/Establish a reliable power distribution network		5040 3 5040 04
tower Supply/Reliable Supply/Comprehensive Outage Management		ESM2.7/ESM2.21
tower Supply/Reliable Supply/On-load exercise Worlk	EC8	ESM2.22
tower Supply/Reliable Supply/Rapid Restoration of Supply	EC8	
ower Supply/Reliable Supply/ Important power supply guarantee mission	S05	
ower Supply/Contingency Management		
lower Supplyl Contingency. Management/Prompt response in disaster relief	4.11	S3.2
lower Supply/ Contingency Management/Improve comprehensive capability in contingency management	4.11	
ower SupplylEmergency Management/reinforce contingency drills	4.11	
Yower Supply/Grid Construction	EC8	
ower SupplyGrid ConstructionPower grid plan and investment fower SupplyGrid Construction/standardzed power grid construction mangement		
ower supplyProtect power facilities	PR2	
tower Supply/Science and technology innovation	TIL	
tower Supply/Science and technology innovation/Science and technology innovation achievements		M2.11/M2.13
tower Supply/Science and technology innovation/ Science and technology innovation plan		PE-11/PE-13
tower Supply/Science and technology innovation/innovation scheme		
over cupplyScience and lectricogy into automitive and science and lectrology fine strent		M2.9
Economic Performance		M1.2/M1.3/S1.5/S1.6
conomic Performance/Operation Performance	EC1	M1.2/M1.3/M1.4/M1.5/S1.5/S1.6
conomic Performancel Law Compilance	EN28	M3.6/M3.7/M3.9/M3.10/S1.4
conomic Performancel Law Compilance Legal Risk Management	S08	M3.8/S1.1/S1.2/S1.7
conomic Performancel.Law Compilance/Strengthened Internal Control	S04	S1.2
conomic Performancel Law Compilance/Supervision over Major Decision-making	4.6/S04	S1.2
conomic Performancel Law Compilance Clean Business	S03/S04	\$1.2/\$1.3
conomic PerformanceLaw Compilance/Performance Supervision	S04	S1.2
conomic Performance/Decreased Cost and Enhanced Performance		
conomic Performance/Promote Development of Electricity Market		ESE2.11
conomic Performance/Serve the Economic Development in Five Provinces	S05	S1.8/S4.2
conomic Performance/Strengthened Cooperation with Hong Kong and Macau		M3.2
conamic PerformancePromote GMS Cooperation		
Green and environment protection	EC2/EN5/EN18	E3.1/E3.2
ieen and environment protection/Energy saving and emission reduction at power source side	EN18	ESE2.2
treen and environment protection/Energy saving and emission reduction at power source side/Facilitate optimization of power source installed capacity structure		
ireen and environment protection/Energy saving and emission reduction at power source side./Hydropower transmission from west to east	EN5/EN16/EN17/EN18	E2.1
reen and environment protection/Energy saving and emission reduction at power source side /dean coal-fired power development	EN5/EN18	
ireen and environment protection/Energy saving and emission reduction at power source side/Support nuclear power development	EN18	
reen and environment protection/Energy saving and emission reduction at power source side /Energy saving-based power generation dispatching	EN5/EN18	E1.7/E1.8/ESE2.3
reen and environment protection/energy saving and emission reduction at power source side/Support new energy development	EN18	ESE2.4/E2.15
	EN26/S01	E1.5/ESE1.6/ESE1.9/E1.12/E3.3
		L1.0/L0L1.0/L0L1.0/L1.11.0/L0.0
Jeen and enviroment protection. The sign send an assion reduction at power of ordische Constitut a genen power grid Deen and enviroment protection. Evergy senting and envision reduction at power grid side Implement ley projects to boost. West-to-East" power transmission. Jeen and enviroment protection of Energy senting and envision reduction at power grid side. Evergy, saving and environment protection of prediction for expression reduction.		ETIS ESETIM ESETIMETTI DE COS

Report Index

Report directory	GRI benchmarking	CASS-CSR benchmarking
Green and environment protection	EC2/EN5/EN18	E3.1/E3.2
Green and environment protection/Energy saving and emission reduction at power grid side /Energy saving and emission reduction operation/Safe waste		ESE2.5
Green and environment protection/ Energy saving and emission reduction at customer side / put energy saving policy at customer-side in place	EN6/EN18	E1 2/ECE2 0/ECE3 0
Green and environment protection/Energy saving and emission reduction at customer side/EMC Green and environment protection/Energy saving and emission reduction / at customer side Guide customers to save energy and reduce emission	EN6/EN18	E1.3/ESE2.8/ESE2.9
Green and environment protection Energy saving and emission reduction at customer side (Support EV Industry development).	EN5/EN6/EN18 EC8/EN18	ESE2.10
Green and environment protection? Energy saving and emission reduction at customer side (Disseminate energy saving philosophy	EN6/EN18	E1.2/E1.11/E2.15
Green and environment protection/Green Development 2020	EN6/EN18	
Green and environment protection/Green Development 2020/ Golden bee 2020 Low Carbon Development Initiative	4.12/EN6/EN18	
Green and environment protection/IGreen Office Campaign	EN6/EN18	E2.12/E2.13/E2.14/E3.4
Environment Protection/Energy Saving and Emission Reduction Performance	EN5/EN16/EN17	P5.2/E3.2
Social Harmony	4.8/EC1	S2.22/ESS4.3/S4.13
Social Harmony/Serve Agriculture, Rural Area, Rural Population		
Social Harmony/Serve Agriculture, Rural Area, Rural Population Expand Investment in Rural Network	S05	
Social Harmony/Serve Agriculture, Rural Area, Rural Population Expand Investment in Rural Network	S05	ESM2.14
Social Harmony/Serve Agriculture, Rural Area, Rural Population/Improve Rural Power Service	S05	ESS2.9
Social Harmony/Serve Agriculture, Rural Area, Rural Population/Shoulder universal service and facilitate ethnic harmony	S05	
Social Harmony/Sene Agriculture, Rural Area, Rural Population/Supply power to the place afar and light the Drung River		ESM2.15
Social Harmony/Social Welfare	S09	S4.1/S4.9/S4.11/S4.15
Social Harmony/Social Welfare Poverty-Alleviation	EC1	S4.4
Social Harmony/Social Welfare/Disaster-Relief	EC1	
Social Harmony/Social Welfare/Support to Xinjiang	EC1	
Social Harmony/Social Welfare/Volunteer Activity	EC1	S4.12
Social Harmony/Min-win Cooperation		M3.11
Social Harmony/Win-win Cooperation/Strengthened Cooperation with Power Plants		
Social Harmony/Win-win Cooperation/Guarantee Supplier's Interests	EC6	M3.3/M3.4/S4.7/S4.8
Social Harmony/Win-win Cooperation/Industrial Exchange Social Harmony/Win-win Cooperation/Improve Contractor's Ability to Implement Obligations	4.13	
Social Harmony/Win-win Cooperation/Conduct international cooperation		G3.3/M3.1/ESM3.5
Social HarmonyWin-win Cooperation Structure reform		
Social Harmony/Employee Development	2.9	DF 9/59 F/59 C/59 7
Social Harmony/Employee Development/Employee Interests	EC3/EC5/LA1/LA2/LA13/LA14/HR1/H	P5.2/S2.5/S2.6/S2.7 R4 S2.1/S2.2/S2.3/S2.10/S2.11/S2.12/S2.20/S2.31
Social Harmony/Employee Development/Employee Professional Safety and Health	LA8/LA9	S2.16/S2.17/S2.18/S2.19
Social Harmony/Employee Development/Democratic Management	4.4	\$2.4/\$2.24/\$2.25/\$2.29
Social Harmony/Employee Development/Employee Training	LA10/LA11	S2.21
Social Harmony/Employee Development/Career development		S1.9/S2.23/S2.30/S4.5
Social Harmony/Employee Development/Cadre management		
Social Harmony/Employee Development/Care for Employees		S2.26/S2.27/S2.28
Responsibility management/ Responsibility governance	4.8	G2.1/G2.2/G2.3/G3.3/G3.5/G5.2
Responsibility management/ Responsibility advancement		G1.3/G3.1/G3.2/G4.3/G5.5/G6.1
Responsibility Management/ responsibility innovation	3.2	G5.3
Responsibility Management/Responsibility Honor	2.10	G5.5
Responsibility Management/Stakeholder Communication and Participation	4.14/4.15/4.16/4.17/S05	G5.1/G5.4
Outlook 2012	4.8	(A1)
Third-party Evaluation Report Index	2 1 2 2 1 2	(A2) (A3)
report index Performance of the United Nations Global Compact	3.12/3.13	(A.3) P5.1
Penumance of the United Nations Global Compact About the Report	3.3/3.5/3.11	P1.3
About the Recont/Time Frame	3.1	P1.1
About the Report Range of report	3.6/3.7	P1.2
About the Report Compilation Basis	4.12	P1.5
About the Report Reference		P1.5
About the Report Data Source	3.9	P1.4
About the Report Reliability Guarantee		P1.6
About the Report Title Description		N 0
About the Report For More Readings About the Report Ask For a Copy of This Report	3.4	P1.8 P1.7/P1.8
Feedback Form	3.4	(A4)
KPI		P5.1/P5.2
	2.54.0	G4.1/G4.2
Innovative report compilation model	3.5/4.9	
	2.4/3.4	P4.1





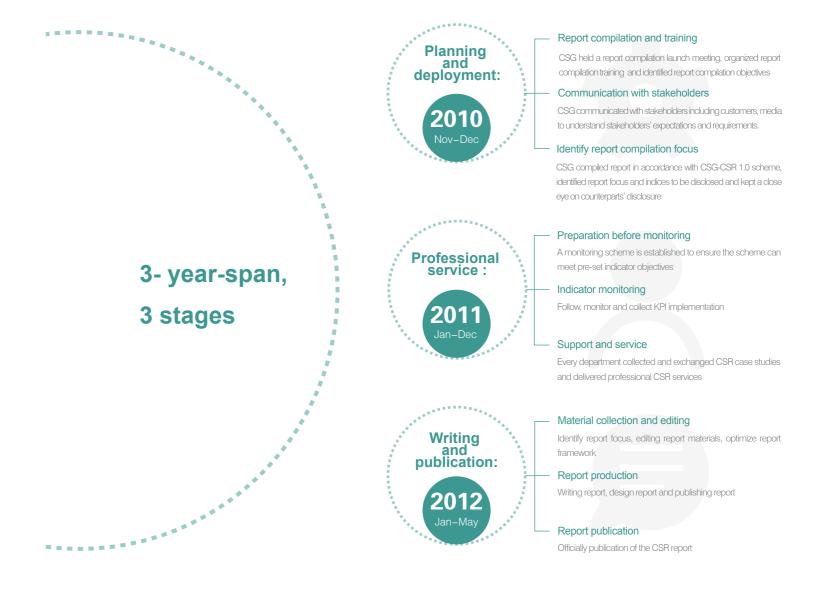
Performance of the United National Global Compact

	Ten Principles	In the chapter of the report	Compliance and progress update in 2011	
respo inter hum Human Rights Make com	Businesses should support and respect the protection of internationally proclaimed human rights	Employee Rights Democratic management	Comply with laws and regulations, implement Labor Law and rules. Pay full respect to and guarantee employees' right to be a participate or right, to expression and right to be a participate or right.	
	Make sure that they are not complicit in human rights abuses	Employee Rights Serve Agriculture, Rural Areas and rural population	know, right to participate, right to supervise and right to express. Power supply to 43,800 household with no access to power in the past.	
	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	Democratic management	In strict compliance with the Labour and Contract Law of People's Republic of China, and sticks to fair employment and equal pay.	
	The elimination of all forms of forced and compulsory labor	established trade union. Every staff at grass root level trade union member. Employee Interests Carry out employee mentoring programme, and	established trade union. Every staff at grass root level is a trade union member.	
Labor	The effective abolition of child labor	Employee Interests	balance between life and work 100% proposals made by employee representatives were addressed. 332 democratic life meeting was held and 3,057 correction measures were formulated. Absolute elimination of child labour and CSG acts as an equal opportunity employer, employ any qualified people regardless of his/her disability.	
	The elimination of discrimination in respect of employment and occupation	Employee Interests		
	Businesses are asked to support a precautionary approach to environmental challenges	Green and Environment Protection	In CSG service area, the newly added wind power was	
Environment	Undertake initiatives to promote greater environmental responsibility	Green and Environment Protection	724.7MW, representing 59.55% increase. The average coal consumption of coal-fired power generation was 305 grams/KWh, representing 4 grams/KWh reduction than that of 2010. Grid-wide line loss rate was 5.35%, representing 0.93% reduction than that of 2010.	
	Encourage the development and diffusion of environmentally friendly technologies	Energy Efficient Operation		
Anti- corruption	Businesses should work against corruption in all its forms, including extortion and bribery	Law Compliance	avoid legal risks, with the focus on internal control enhancement, performance supervision, and put supervision of important decision implementation in place. CSG is dedicated to establishing itself as a zero-corruption and clean company. CSG's long term corporate credit rating is super AAA. In 2011, no major law/regulation breach happened.	

Innovative report compilation model ,integrating CSR into management

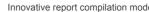
The current practice of report compilation in China is ex post, which makes it difficult to give full play of CSR report in disseminating CSR, improving practice and management.CSG made an innovative approach in CSR philosophy and report compilation. CSG is the first one in China adopting "process management" in report compilation. The report spans 3 years (2010,2011, and 2012), covering planning, deployment, professional service, publishing, and the first one in China.

The core of "process management" is to manage the whole compilation process, do dynamic follow-up and service of key social responsibility indices, understand and respond to stakeholders' demand and expectation in a timely manner, constantly improve CSG's service, and establish CSG as a well-managed ,reputable and leading international power grid delivering quality service to its customers. Integrating CSR in daily operation is in line with the core concept of ISO 26000 and is the first in China.



CSR Report plays three functions: Disseminate concept, improve practice and boost management





About the Report

This Report is the fifth Social Responsibility Annual Report issued by China Southern Power Grid Co., Ltd. It was written in Chinese and in English. Adhering to the principles of being objective, standard, transparent, and comprehensive, the Report disclosed the company's safe and quality power supply, and its performance in economy, environment, and society. The Chinese version will be the final version, should discrepancies occur between Chinese and English versions.

▶▶ Time Frame

The time frame of the report is from Jan.1st, 2011 to Dec.31st, 2011. Part of the content extends to other years performance to enhance comparability and forward looking of the report.

Range of report

"China Southern Power Grid Co., Ltd." is the principle part of the Report, including its subsidiaries, branches and affiliated institutes.

Compilation Basis

CSG Social Responsibility Index (CSG-CSR 1.0)

Reference

SASAC's "Guidelines—About Central Enterprises' Implementation of Social Responsibility"; (No.1, 2008, Research of SASAC);

SASAC's Harmonious Implementation Strategy Guidelines for Central Enterprise in the 12th Five-Year-Plan Period

CASS-CSR 2.0 of Chinese Academy of Social Sciences;

Global Reporting Initiative's Guidelines; (GRI Version 3.1) Complementary Indices for Power Industry (GRI EL)

"China Industrial Enterprise and Industrial Association Social Responsibility Guidelines", China Federation of Industrial Economics'

"Recommendations Standards on Social Responsibility of Chinese Enterprises and the Implementation Guide", China Business Council for Sustainable Development.

Data Source

Data adopted in the Report are based on the company's official documentations,d statistics reports and other published information.

▶▶ Reliability Guarantee

CSG guarantees that no false record, misleading statement or substantial omission in the report.

▶▶ Title Description

In the Report, "China Southern Power Grid Co., Ltd." is also referred to as "CSG", "the company", or "we".

▶ Ask for a copy of this report

You can download an electronic copy from our official website. Should you have any inquires, or should you need a hardcopy, please send email to csr@csg.cn, or call us at (020) 38121917.

For more readings

If you wish to know more about social responsibility of CSG, please visit the official website at: www.csg.cn, and please refer to the Social Responsibility Report published by Guangdong Power Grid, Guangxi Power Grid, Yunnan Power Grid, Guizhou Power Grid, Hainan Power Grid, Guangzhou Power Supply Co., Ltd and Shenzhen Power Supply Co., Ltd in 2011 "CSG Green Development report".

Feedback form

Dear readers: Thank you for reading our report. CSG is and will make every effort to improve the report. We would appreciate if you could let us know our comments. Multiple choice questions: (please tick your choice) 1. You think the Report is in general: ☐ Very good ☐ good ☐ Ok ☐ poor ☐ very poor 2. You think the quality of the information released is: ☐ Very good ☐ good ☐ Ok ☐ poor ☐ very poor 3. You think the structure of the Report is: ☐ Very good ☐ good ☐ Ok ☐ poor ☐ very poor 4. You think the layout design of the Report is: ☐ Very good ☐ good ☐ Ok ☐ poor ☐ very poor 5. You think the readability of the report is ☐ Very good ☐ good ☐ Ok ☐ poor ☐ very poor Open questions 1. In your opinion, what improvements should the report make? 2. What other social responsibility information should the report disclose? 3. Any suggestions on CSG's social responsibility work, please specify:

(We would appreciate if you could fax the completed feedback form to 020-38122187)

80 A Myriad of Twinkling Lights, Great Rapport of CSG



Key Corporate Social Responsibility Performance of CSG in 2011



